Rare Book
QK1
L5642
1811
V.10

THE TRANSACTIONS OF THE LINNEAN SOCIETY OF LONDON.

VOLUME X.

LONDON:

PRINTED BY

RICHARD TAYLOR AND CO., SHOE-LANE, FLEET-STREET.

SOLD AT THE SOCIETY'S HOUSE, NO. 9, GERRARD-STREET, SOHO;
BY WHITE AND COCHRANE, FLEET-STREET;
AND LONGMAN, HURST, REES, ORME, AND BROWN, PATERNOSTER-ROW.

MDCCCXI.

MISSOURI
BOTANICAL
GARDEN.

CONTENTS.

PART I.

I. *Characters of a Liliaceous Genus called Brodiæa. By* James Edward Smith, *M.D. F.R.S. P.L.S.* - p. 1

II. *Remarks on the Sedum ochroleucum, or* Αειζωον το μικρον *of Dioscorides: in a Letter to* Alexander MacLeay, *Esq. Sec. L.S. By* James Edward Smith, *M.D. F.R.S. P.L.S.* - - - - - - - p. 6

III. *A Determination of Three British Species of Juncus, with jointed Leaves. By the Rev.* Hugh Davies, *F.L.S.* p. 10

IV. *On the Proteaceæ of Jussieu. By Mr.* Robert Brown, *Lib. L.S.* - - - - - - - p. 15

V. *On a remarkable Variety of Pedicularis sylvatica: in a Letter to* Alexander MacLeay, *Esq. F.R.S. and Sec. L.S. By* James Edward Smith, *M.D. F.R.S. P.L.S.* - - - - - - - p. 227

PART

PART II.

VI. *A Botanical Description and Natural History of the Malabar Cardamom. By Mr.* David White, *Surgeon on the Bombay Establishment. Communicated by the Directors of the Hon. East India Company. With additional Remarks by* William George Maton, *M.D. V.P.L.S., &c.* - - . . - p. 229

VII. *Some Account of the Herbarium of Professor* Pallas. *By* Aylmer Bourke Lambert, *Esq. F.R.S. and A.S. V.P.L.S.* - - - - - p. 256

VIII. *Some Remarks on the Synonyms and native Country of Hypericum calycinum. By* James Edward Smith, *M.D. F.R.S. and P.L.S.* - - - - p. 266

IX. *Notes relating to Botany, collected from the Manuscripts of the late* Peter Collinson, *Esq. F.R.S. and communicated by* Aylmer Bourke Lambert, *Esq. F.R.S. and A.S. V.P.L.S.* - - - p. 270

X. *A Description of several Species of Plants from New Holland. By* Edward Rudge, *Esq. F.R.S. and L.S.* p. 283

XI. *Some Remarks on the Physiology of the Egg, communicated in a Letter from* John Ayrton Paris, *M.B. to* William George Maton, *M.D. V.P.L.S. &c. &c.* p. 304

XII. *Some*

XII. *Some Observations on the Parts of Fructification in Mosses; with Characters and Descriptions of Two new Genera of that Order. By Mr.* Robert Brown, *Lib. Linn. Soc.* - - - - - - p. 312

XIII. *Description of Seven new Species of Testacea. By* William George Maton, *M.D. F.R.S. & A.S. and V.P.L.S.* - - - - - - p. 325

XIV. *An Account of several Plants, recently discovered in Scotland by Mr.* George Don, *A.L.S. not mentioned in the Flora Britannica nor English Botany. By* James Edward Smith, *M.D. F.R.S. P.L.S.* - p. 333

XV. *Descriptions of Seven new Species of Apion. By the Rev.* William Kirby, *F.L.S.* - - p. 347

XVI. *Account of Ormosia, a new Genus of Decandrous Plants belonging to the Natural Order of Leguminosæ. By Mr.* George Jackson, *F.L.S.* - - p. 358

XVII. *An Account of a new Genus of New Holland Plants named Brunonia. By* James Edward Smith, *M.D. F.R.S. P.L.S.* - - - - - - p. 365

XVIII. *A Description of Duchesnea fragiformis, constituting a new Genus of the Natural Order of Senticosæ of Linnæus, Rosaceæ of Jussieu. By* James Edward Smith, *M.D. F.R.S. P.L.S.* - - - - - p. 371

XIX. *Ob-*

XIX. *Observations on some Species of Menziesia, hitherto considered as belonging to the Genus Andromeda, by* Ol. Swartz, *M.D. Bergian Professor of Botany at Stockholm, F.M.L.S.* - - - - - - - p. 375

Additional Note by the President - - p. 379

XX. *Some Observations on the Genus Andræa; with Descriptions of four British Species. By* William Jackson Hooker, *Esq., F.L.S.* - - - - p. 381

XXI. *Some Account of an Insect of the Genus Buprestis, taken alive out of Wood composing a Desk which had been made above twenty Years. In a Letter to* Alexander MacLeay, *Esq. F.R.S. and Sec. L.S. by* Thomas Marsham, *Esq. Treas. L.S.* - - - - p. 399

XXII. *Extracts from the Minute-Book of the Linnean Society of London* - - - - p. 404

Catalogue of the Library of the Linnean Society, continued from Page 328 of Vol. IX. of the Society's Transactions - - - - - - - - p. 408

List of Donors to the Library of the Linnean Society p. 411

Donations to the Museum of the Linnean Society - p. 413

TRANSACTIONS

OF THE

LINNEAN SOCIETY.

I. *Characters of a new Liliaceous Genus called Brodiæa. By James Edward Smith, M.D. F.R.S. P.L.S.*

Read April 19, 1808.

I HAVE had occasion, in treating of the distinctions between a calyx and corolla, *Introduction to Botany*, 263, to advert to a new genus of the liliaceous family, furnished with internal petals. It consists of two species, both which I have received, in a dry state, from Mr. Menzies, who discovered them in 1792 in New Georgia on the west coast of North America. The same liberal friend, to whom the Linnean Society, as well as myself, has so often been obliged, perceiving I had, in the place above mentioned, fallen into an error respecting the number of the internal petals, which are 3, not 6, has favoured me with his original drawings, made from living plants on the spot, with dissections. By these I am enabled better to understand the subject than I could from dried specimens, which I had been unwilling to submit to the process of boiling and anatomizing, till I might have occasion to investigate them thoroughly for precise description. Hence the divided inner petals of one of them

misled me. Mr. Menzies at the same time has communicated a suggestion of Mr. Salisbury's, that these supposed petals are barren filaments. It will appear, from the following characters and remarks, how far this idea is probable or not.

In the first place, as these plants form a most indubitable new genus, of the Liliaceous, or Patrician, order, I have called it *Brodiæa*, after James Brodie, Esq. F.L.S., of Brodie in North Britain, a gentleman whose scientific merits, whose various discoveries, and whose liberal communications on every occasion tending to elucidate the botany of his country in particular, require no elaborate display before the Linnean Society.

BRODIÆA.

TRIANDRIA *Monogynia.* *Sect.* 2; *flores inferi.*

NARCISSI. *Juss.* 54. *Sect.* 1; *germen superum.*

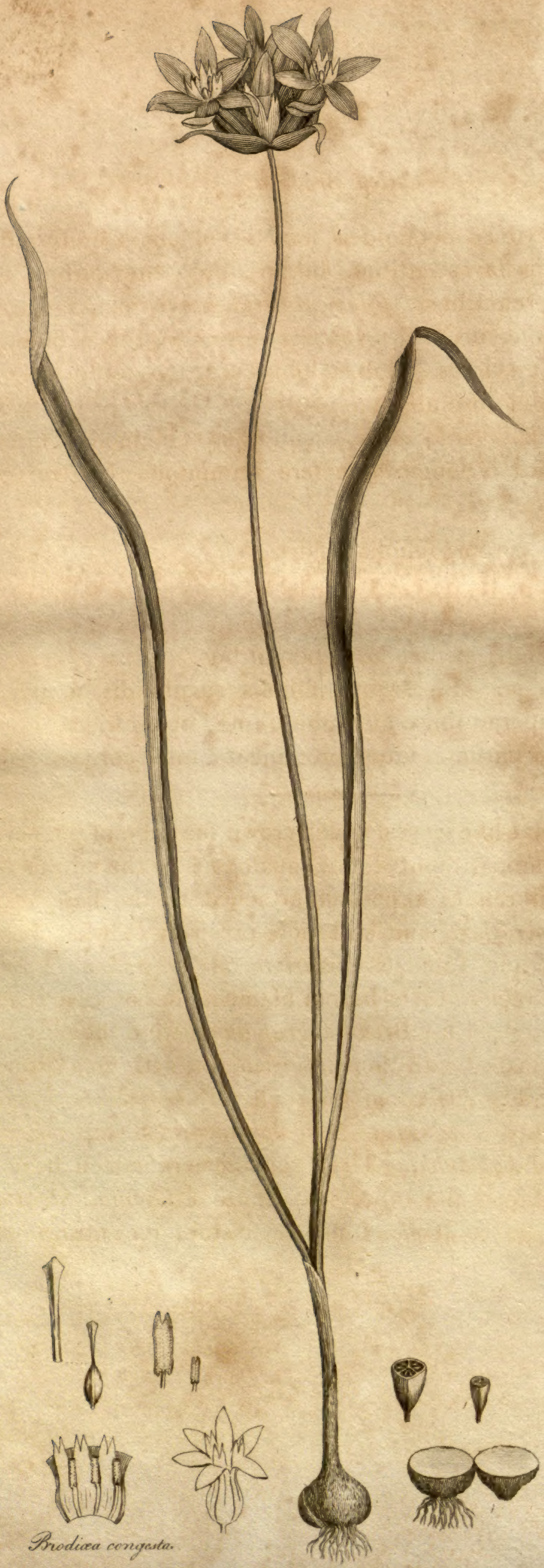
Calyx nullus. *Corolla* infera, tubulosa; limbo sexfido, regulari; coronâ triphyllâ in fauce. *Capsula* trilocularis, polysperma.

1. B. *grandiflora**, coronæ foliolis indivisis.

Radix bulbosa, globosa, solida, tunicâ multiplici, nervosâ. *Folia* bina, radicalia, vaginantia, lineari-lanceolata, acuta, involuto-canaliculata, glabra, ferè pedalia. *Scapus* solitarius, foliis paulò brevior, teres, glaberrimus, subsexflorus, plùs minùs tortuosus. *Pedicelli* umbellati, patentiusculi, filiformes, uniflori, longitudine varii. *Bracteæ* ad basin umbellæ, plures, lanceolatæ, scariosæ, nervosæ, acuminatæ, pedicellis longè plerumque breviores. *Flores* Galanthi magnitudine, pulchrè cyanei, erecti. *Corolla* semisexfida; tubo pallescente, laciniis regularibus, subæqualibus, latò lanceolatis, patenti-recurvis; fauce co-

* Hookera coronaria. *Salisb. Par. t.* 98.

ronatâ



Brodiæa congesta.

ronatâ foliolis tribus, petaloideis, erectis, oblongis, uniformibus, indivisis, dilutè flavescentibus, limbo duplò brevioribus, cum staminibus alternantibus. *Filamenta* tria, brevissima, fauce, inter coronæ foliola, inserta. *Antheræ* verticales, fulvæ, oblongæ, coronâ parùm breviores, bilobæ, lobis extùs longitudinalitèr dehiscentibus, haud absolutè bilocularibus. *Germen* pedicellatum, elliptico-trigonum, triloculare, seminibus columellæ insertis. *Stylus* cylindraceus, longitudine ferè staminum. *Stigma* trigonum, trilobum.

2. B. *congesta*, coronæ foliolis bifidis.

TAB. I.

Radix et *herba* ferè prioris. *Umbella* minor, condensata, bracteis majoribus, latis, pedicellos superantibus. *Flores* cyanei, coronâ dilutiore, nec flavescente, foliolis semibifidis, acutis antheras longè superantibus, at limbo duplò, ut in priore, brevioribus. *Stamina* parùm e fauce prominentia inter coronæ foliola.

The three petal-like leaves, which crown the tube of the corolla in this genus, are, without doubt, analogous to the cup in *Narcissus*, the membranous expansion attached to the base of the stamens in *Pancratium*, and still more precisely to what Jussieu calls *squamulæ*, and Linnæus *nectarium*, in *Tulbaghia*. I see no more reason to reckon them barren filaments in one case than in the others; though, if my *Brodiæa grandiflora* were the only liliaceous plant furnished with them, they might, with great appearance of probability, be taken for such. But *Brodiæa congesta* guards us against this error, and approaches a step nearer to *Pancratium* and *Tulbaghia*. These three genera indeed bear the same relationship to the other *liliaceæ*, that *Gnidia*, *Struthiola* and *Quisqualis* do to *Daphne* and the rest of its natural order.

 If

If the petals of *Gnidia* prove *Daphne* to have a coloured calyx, these correspondent parts in the *liliaceæ* must receive correspondent names. Jussieu therefore is consistent when he denominates the analogous part in the *liliaceæ* and in *Daphne* a calyx, and so is Linnæus when he calls it in both instances a corolla; but the latter errs against all consistency and analogy when he terms calyx in *Gnidia* what he had, in the preceding page, named corolla in *Daphne*. Mr. Salisbury's rule, given in the first paper of our 8th volume, that *the stamens are never inserted into the calyx*, is one of the best upon the subject, yet not without its difficulties, some of which, from a love of truth alone, I beg leave to suggest. If we admit this rule in rosaceous flowers, and the more I have thought on the subject the more I feel disposed to do so, we can hardly allow it in *Ribes*, whose whole faded calyx, perfectly homogeneous and indivisible, sticks to the top of the fruit, retaining the withered petals and stamens, which are together inserted into its sides. If we say analogy proves the lower half of this pretended calyx to be a receptacle, a similar mode of reasoning will prove the tube of *Pancratium*, *Narcissus*, *Tulbaghia*, and of my *Brodiæa* to be a receptacle also, the limb only being the calyx, and the crown a corolla. If this be granted, the lower part of the corolla, as it is usually called, in *Hemerocallis*, *Agapanthus*, *Amaryllis*, *Hyacinthus*, &c.; even the claws of such few, if any, polypetalous *liliaceæ* as really have their stamens inserted there, must also be a receptacle, and the upper part a calyx; which is too paradoxical to be allowed. I say nothing of the *spatha* belonging to some of these liliaceous genera, because even when present I do not think it can invalidate my argument. Their generic characters are independent of it, as those of the *umbelliferæ* are of their *involucra* and *involucella*. I have therefore, in describing

the

the *Brodiææ*, used the word *bracteæ* instead of *spathæ*, as more agreeable to nature.

These difficulties do not trouble the generality of practical botanists; but theoretical ones, before they can found new genera, or even understand the old ones to any purpose, are, and always have been, obliged to consider them, and may be glad of any suggestions on subjects concerning which the chief leaders in botany have never agreed together, nor scarcely been consistent with themselves. I am persuaded the line of discrimination betwixt a calyx and corolla is, in many cases, not to be drawn, for this plain reason, that Nature in such cases unites both the parts into one, the inner surface performing the functions of a corolla, the outer those of a calyx. This is a suggestion of Linnæus, but he has not illustrated it so fully as it deserves. I need not repeat here what is already before the public in another place, *Introduction to Botany*, 264, 266, and 267; nor shall I now add any thing more than a wish, that a subject so interesting to the physiological as well as the systematical botanist might be pursued by both to their mutual assistance.

Norwich, March 5, 1808.

II. **Remarks**

II. *Remarks on the Sedum ochroleucum, or* Αειζωον το μικρον *of Dioscorides; in a Letter to Alexander Mac Leay, Esq. Sec. Linn. Soc. By James Edward Smith, M.D. F.R.S. P.L.S.*

Read November 1, 1808.

Dear Sir,

I beg leave through your hands to welcome my brethren of the Linnean Society on their first meeting for the ensuing season, and to communicate at the same time an article of botanical intelligence rather interesting to those who are solicitous about natural genera, as well as to those who have endeavoured to ascertain the plants of ancient Greek authors.

Jacquin in his *Hortus Vindobonensis, v.* 1. 35. *t.* 81, has described and figured a plant by the name of *Sempervivum sediforme*, which subsequent compilers of botanic systems have implicitly adopted by that name. It has even found its way into the *Hortus Kewensis, v.* 2. 149, being far from uncommon in the English gardens, where it flowers copiously every summer in the open ground. The excellent author above mentioned remarks, that "the appearance of its leaves" (he might have said its whole habit) "is that of a *Sedum*," but that "the flower has "exactly the character of a *Sempervivum*, the petals being 6 or "7, with broad bases, and an equal number in the parts of "the calyx, as well as the germens, and double the number of "stamens." He also asserts that "there are no nectariferous "scales."

The

The plant has so entirely the appearance of a *Sedum* and not of a *Sempervivum*, and I have always thought those genera so natural, and so well marked by the technical character of nectariferous scales at the base of the germen in the former, which the latter wants, that I have often regretted to read Jacquin's account, which I presumed was correct. But meeting with this plant in Dr. Sibthorp's Greek herbarium, it became necessary to investigate its characters myself. In the winter time I could only examine one of his specimens by means of hot water; but there, to my great satisfaction, I found the nectariferous scales as evident as in any *Sedum* whatever; and on dissecting living flowers last summer in my garden, the same character was every where obvious. In number of parts indeed this flower wanders a little from the character of that genus, and from its class *Decandria*, having often, when cultivated, as many petals, stamens and pistils as Jacquin describes, or even more, though this is chiefly the case in the first flowers of the cyme, and not so much in the external ones. I have therefore introduced the plant in question into the second part of the *Prodromus Floræ Græcæ, p.* 312, by the name of

SEDUM OCHROLEUCUM,

foliis glaucis sparsis acutis: inferioribus teretibus; superioribus ellipticis depressis, laciniis calycinis acutiusculis.

It is curious that Linnæus, in a manuscript note, has referred this plant of Jacquin to his own *Sedum rupestre*, a very different species, which he had adopted from Dillenius's *Hortus Elthamensis*; see *Engl. Bot. t.* 170 and *t.* 1802.

Dr. Sibthorp, who was well acquainted with his learned friend Jacquin's plant, mentions it in his papers as one of the most common

common species in various parts of the continent of Greece, as well as in almost all the Greek islands, growing on rocks and walls near the sea-side. At Athens it is pounded and applied as a cooling cataplasm to bruises or to gouty limbs, being called Κολλωρίδα by the Athenians of the present day. Its most general names however in modern Greek are Αμάραντο and Σταφυλάκι.

The three species of Αειζωον or *Sempervivum* in Dioscorides seem to have been misunderstood. The 1st, Αειζωον το μεγα, hitherto taken by Matthiolus and others for the Common House-leek, *Sempervivum tectorum*, is justly referred by Dr. Sibthorp, as well as Clusius, to *Sempervivum arboreum*, with which the description of Dioscorides, more full than usual, most admirably agrees, and not at all with the *tectorum*. The 2d, Αειζωον το μικρον, or *Sempervivum minus*, was taken by Matthiolus for *Sedum album*, and by Dr. Sibthorp, not without much doubt, for *Sempervivum hirtum*; but I have no scruple at all in referring it to my present *Sedum ochroleucum*, a plant probably not known to Matthiolus. Dioscorides says "it grows on walls, stones and "banks, as well as about shady enclosures. Several slender "stems," he adds, "spring from one root, thickly encompassed "with little round succulent sharp-pointed leaves. It throws "out, moreover, a stem towards the middle, about a span high, "with an umbel of slender (greenish or) pale yellowish flowers. "Its leaves have the same virtues with the former."—The virtues alluded to of "the former," or *Sempervivum arboreum*, are cooling and astringent; whence Dioscorides recommends that plant in inflammatory eruptions and the gout, for which the *Sedum ochroleucum* is used at present, as mentioned above.

The 3d, Αειζωον ἑτερον, which is described as "heating, acrid "and exulcerating, with very small thick leaves," seems to be *Sedum acre*, as Matthiolus and Clusius judged, though Dr. Sib-

thorp

thorp took it for our *Sedum ochroleucum*, on the authority of a figure in the celebrated Imperial manuscript of Dioscorides at Vienna, which he considered as of great authority. The qualities however recorded of this 3d Αειζωον are quite at variance with those which Dr. Sibthorp himself attributes to the *Sedum ochroleucum*, and which agree with those ascribed by Dioscorides to his second species.

I remain,

J. E. SMITH.

Norwich, October 28, 1808.

III. *A Determination of Three British Species of Juncus, with jointed Leaves.* *By the Rev. Hugh Davies, F.L.S.*

Read November 1, 1808.

In the course of a morning's walk having been fortunate in an opportunity of examining the knotty-leaved division of the genus Juncus, by finding all the species on nearly the same spot, I am induced to request leave to lay before the Linnean Society the result of my observations.

Here then I must premise, that the want of an opportunity of examining them in a proper state, and comparing them together, I take to have been the cause that what seem to me to be distinct species have been treated as varieties only, by men of eminence in the science of botany.

In consequence of the attention which I bestowed on them, I am much inclined to suppose that I can determine into *three* very distinct species, what have been deemed *two* varieties only of the species *J. articulatus, Linn. Sp. Pl., Sm. Fl. Brit.*, and *Leers Fl. Herborn.;* but are considered as two species, indeed, by Dr. Sibthorp, viz. *compressus* and *nemorosus;* and two species, likewise, by Mr. Relhan, viz. *compressus* and *articulatus.*

My *three* species I shall at present distinguish as first, second, and third.

In the first the branches of the panicle are strong, erect, fewer, and less diffuse than in the other two; the capsule is large, of a deep reddish brown colour, and finely glossed; of

an

an oval triangular shape, terminated by a short blunt point; the stalk of 4—6 joints.

This is JUNCUS *articulatus*, *Fl. Brit.*, *Fl. Herborn.*; and *compressus* of Sibthorp and Relhan. *Moris. s.* 8. *t.* 9. *f.* 2. *Scheuchz.* 331. 1. *R. Syn.* 433. 8. but I cannot refer to the *Sp. Pl.*, where the definition is *petalis obtusis.*

In the SECOND the panicle is more branched, the branches more slender, and spreading, the divisions of the calyx narrower and longer, the capsule smaller, much more taper-pointed, and lighter-coloured; culm of fewer joints, that, and the leaves, less compressed. It is a taller plant, sometimes above three feet high, and it ripens later.

This I take to be *Moris. s.* 8. *t.* 9. *f.* 1. certainly *Scheuchzer, p.* 334. 4. who says: "Calami tribus quatuorve communiter geniculis distincti,—Flosculi nunc dilutiùs nunc obscuriùs fusci aut spadicei,—Vasculum seminale triquetrum, in acutum mucronem terminatum." It is likewise *J. articulatus* of Relhan; and *nemorosus* of Sibthorp.

My THIRD differs from both the former in several particulars: —The panicle is much lighter-coloured; the peduncles, which are divaricated, and even bent back, are evidently thicker than those of the SECOND, the panicle of which resembles this more than that of the FIRST. Then the *smallest* capsule of this;—the pale-coloured bunches of florets,—and particularly the elliptic obtuse segments of the calyx, with a broad scariose margin, fully distinguish it from the other two. It is, besides, a firmer plant, the nodes in the leaves being scarcely perceptible without a considerable degree of pressure;—the culm and leaf are quite round, and it never has more than two joints in the stalk!

I find no description of this species besides the short one in *Fl. Brit. articulati var.* β. "culmo erectiore, panicula ramosiori,

 floribus

floribus minoribus, pallidioribus et obtusioribus." At the same time I cannot admit it to be these following, which are there referred to, viz. *Moris. s.* 8. *t.* 9. *f.* 1. nor Relhan's *articulatus*, who gives his from Leers, *petala acutissima.* Nor is it *R. Syn.* 433. No. 9. *entirely;*—it is *Doody's* plant there mentioned, which he tells us he found in *Peckham-field*, "cum glumis albis." It may, by the definition, be Haller's plant, No. 1323, "foliis teretibus articulatis, panicula repetito-ramosa;" but his description evidently comprehends the SECOND as well as this. Withering's 5th var. of *articulatus*, p. 347. "husks white," seems to be this plant.

These references prove that this species has not hitherto escaped notice; but I wonder that the character, from whence I was inclined to take its trivial name, has not been noted by any writer I have seen!

As I wished to avoid the confusion which naturally arises from repeatedly changing names, my design was to have named the three species;—the FIRST, *compressus;* the SECOND, *nemorosus*—both after Dr. Sibthorp; and my THIRD, *divaricatus*—a trivial appellation which I think particularly suitable to it.

I communicated this my idea, of three species, to my respected friend Dr. Smith, who gave it as his opinion that they ought to be separated, and that the same thought had occurred to Ehrhart, who has made three species of them, under the following names:—*lampocarpus*, (my FIRST); *acutiflorus*, (my SECOND); *obtusiflorus*, (my THIRD); which accord exactly with my notion.

These names I now adopt; and, as I have not seen Ehrhart's definitions, I define them as follows.

Juncus,

JUNCUS, &c.

** *Culmis foliosis.*

† *Foliis nodoso-articulatis.*

lampocarpus. *Ehrh. Calam. No.* 126.	J. foliis compressis, paniculâ terminali compositâ erectâ, calycis foliolis tribus exterioribus ovato-lanceolatis, acuminatis; interioribus, scarioso-marginatis obtusiusculis, capsulâ ovatâ triquetrâ stylo brevi terminatâ fusco-purpureâ nitidâ, culmo 3—6-folio.
acutiflorus. *Ehrh. Calam. No.* 66.	J. foliis compressiusculis, paniculâ terminali supradecompositâ diffusâ, calycis foliolis omnibus lanceolatis acuminatis, capsulâ ovato-oblongâ triquetrâ mucronatâ, culmo 3—4-folio.
obtusiflorus. *Ehrh. Calam. No.* 76.	J. foliis terretibus, paniculâ terminali supradecompositâ, pedunculis divaricato-refractis! calycis foliolis ellipticis obtusis, capsulâ ovato-acuminatâ triquetrâ, culmo bifolio!

The capsules of *lampocarpus* are by much the largest; those of *acutiflorus* are evidently larger, and more elongated, than those of *obtusiflorus;* (i. e.) the largest and strongest plant bears the smallest capsule.

The branches of the panicle in *lampocarpus* are sometimes but once divided, but frequently twice, and even thrice, as well as in the two other species.

When *lampocarpus* happens, from some accidental cause, to flower late in the season, so as not to perfect its large and polished capsules, it may be distinguished by a disposition to become

come viviparous, and branching at the joints,—a property which I never observed in either of the other two species.

Another character whereby *obtusiflorus* may be known, even at a distance, is, that where it is found in any plenty, a number of the panicles are frequently seen entangled together, so as not easily to be disengaged; this proceeds from the extreme divarication of the branches of the panicle.

IV. *On*

IV. *On the Proteaceæ of Jussieu. By Mr. Robert Brown, Lib. L.S.*

Read Jan. 17, 1809.

The Linnean system of botany, though confessedly artificial, has not only contributed more than all others to facilitate the knowledge of species, but, by constantly directing the attention to those essential parts of the flower on which it is founded, has made us acquainted with more of their important modifications than we probably should have known, had it not been generally adopted, and has thus laid a more solid foundation for the establishment of a natural arrangement, the superior importance of which no one has been more fully impressed with than Linnæus himself.

There are still, however, certain circumstances respecting the stamina and pistilla, which appear to me to have been much less attended to than they deserve, both by Linnæus and succeeding botanists. What I chiefly allude to is the state of these organs before the expansion of the flower. The utility of ascertaining the internal condition of the ovarium before fœcundation will hardly be called in question, now that the immortal works of Gærtner and Jussieu have demonstrated the necessity of minutely studying the fruits of plants in attempting to arrange them according to the sum of their affinities, as in many cases the true nature of the ripe fruit, especially with respect to the placentation of the seeds, can only be determined by this means. Its importance is indeed expressly inculcated by many botanists,

who,

who, however, have frequently neglected it in practice: nor do I find any one who has steadily kept it in view, except Aubert Du Petit-Thouars in his excellent work on the plants of Madagascar and the Isles of France and Bourbon.

The bursting of the antheræ has, it is true, been generally observed, and many of its most unusual modes have been introduced into the characters of genera; but the examination of these organs, at a still earlier period, has been universally neglected; and hence the very imperfect knowledge which, even now, is possessed of their real nature in two of the most remarkable families of plants, the Orchideæ and Asclepiadeæ.

Examples of the great advantage of observing the antheræ in this early stage will hereafter be given in my general remarks on the order which is the proper subject of this essay. But I trust I shall be pardoned for here introducing some account of their structure in Asclepiadeæ, as it will enable me not only to bring forward the most striking proof of the importance of this consideration with which I am acquainted, but also, as I apprehend, to decide a question which has long occupied, and continues to divide, the most celebrated botanists.

The point in dispute is whether this order, comprehending Asclepias, Cynanchum, Pergularia, Stapelia, and several genera, at present confounded with these, ought to be referred to Pentandria or Gynandria, and, if to the latter, whether the antheræ are to be considered as five or ten; all of which opinions have had advocates of the greatest name in the science.

According to Linnæus, Jussieu and Richard they belong to Pentandria.

Linnæus has assigned no reason for his opinion, which, however, it appears he retained after he became acquainted with the observations of Jacquin and Rottboell; but it is probable he

was

was induced to adopt it more from the consideration of the close analogy these plants have with the manifestly pentandrous Apocineæ, than from regarding them as strictly referable to this class; for, in his natural generic characters of Asclepias and Pergularia, he very clearly describes both these genera as gynandrous.

Jussieu has entered more fully into the subject, but seems also to have been chiefly guided by this analogy and the observations of others; as he concludes by expressing his doubts, respecting both the origin and use of the parts.

Richard, whose description of these organs I find in Persoon's Synopsis, has indeed come nearer to the solution of the question; his account, however, of the origin of the lateral processes hereafter mentioned, proves that this description was not altogether formed on actual observation.

Jacquin, the first botanist that submitted these plants to minute examination, and whose figures well illustrate most points of their structure, has adopted a very different opinion, referring them to Gynandria, in which he is followed by Koelreuter, Rottboell and Cavanilles, all of whom likwise agree with him in considering them as decandrous; while Dr. Smith, in his late valuable Introduction to Botany, who conceives that "no plants can be more truly gynandrous," regards them as having only five antheræ. And lastly Desfontaines supposes the five glands of the stigma to be the true antheræ, considering the attached masses of pollen as mere appendages to these.

All the authors who thus refer them to Gynandria seem quite confident in the justness of their views; and yet the inspection of a single flower bud overturns, as it appears to me, with irresistible evidence, the conclusion they had formed from premises apparently so satisfactory.

My attention, while in New Holland, having been much engaged

gaged by the plants of this family, the species in that continent being both numerous and with difficulty reducible to established genera: I there observed the following facts concerning them, all of which I have, since my return to England, confirmed by the examination of different species of the same tribe.

The observations of Jacquin on this subject being generally known, it must be unnecessary to enter into a minute description of those organs which are well exhibited by his figures in every respect, except as to the origin of the supposed antheræ.

If a flower bud of any plant of this family, while scarcely half the size it attains immediately before expansion, be carefully examined, it will be found that the polleniferous sacs, as they are termed by Jacquin and his followers, in which they suppose the antheræ to be merely immersed, are really the organs by which the fœcundating matter is secreted: for at this period they are perfectly closed, and consequently all communication cut off between the stigma and their contents now consisting of a turbid fluid or pulpy mass. If the stigma be at the same time observed, the gland-like bodies which originate in its grooved angles are already visible; but, instead of having the cartilaginous or horny texture which they at length acquire, are as yet semi-fluid, and of hardly a determinate form. Near the base of each side of these grooves a more superficial depression is observable, which, though in some cases extremely short, is in others of considerable length, and generally forms a right angle with the corresponding groove. In these depressions, the processes by which, at a more advanced stage, the contents of the antheræ are connected with the stigma, are immersed, and at this period they are found to be semi-fluid. By degrees the glands, as well as their lateral processes, acquire a firmer consistence, and the inferior or outer extremity of each of the processes, being extended beyond its de-

pression

pression or furrow, on the bursting of the opposite cell of the corresponding anthera, firmly attaches itself to its contents, now become a regular mass of a waxy consistence.

If the accuracy of this statement be admitted, it will probably be allowed that the *Asclepiadeæ* cannot be regarded as gynandrous, especially in the sense in which they are so considered by botanists; but lest it should not be thought completely satisfactory, it may be added, that in a still earlier stage of the flower bud I have found the fœcundating matter already secreted in the cells of the antheræ, while the glands of the stigma, as well as their processes, were absolutely invisible.

As to the question of their being pentandrous or decandrous, every analogy must lead us to refer them to the former class; nor indeed have they, when not considered as gynandrous, been ever supposed to belong to Decandria.

An œconomy, in many respects similar to that now described, obtains also in Orchideæ, in which, however, the processes connecting the antheræ with the stigma, where they exist, are in many cases derived from the masses of pollen themselves; but in others they as certainly originate from the stigma, or its glandular appendage.

The result of my examination of these two interesting orders of plants, I hope hereafter to submit to the Society; and I now proceed to the proper subject of the present paper.

The natural order of Proteæ, or, as it is less exceptionably called, Proteaceæ, was first established in the Genera Plantarum of the celebrated Jussieu; and the description there prefixed to it will, with a few alterations, still apply to the order, now that it has received so many additions, not only in species, but in very distinct genera, several of which were first published by

 Dr. Smith

Dr. Smith, in the 4th vol. of the Society's Transactions, and others are in the present paper submitted to the consideration of botanists.

The general description and definition of the order will be most advantageously placed at the head of its systematic arrangement; before entering upon which, I shall offer some remarks on its geographical distribution, and likewise on such modifications of structure in the different organs as appear to be of the greatest importance in indicating or characterizing genera.

The geography of plants being as yet in its infancy, the smallest addition to our knowledge of a subject which promises to become of considerable importance, will probably be received with indulgence; and in this persuasion I venture to make the following observations on the order before us. In the first place, it is remarkable that the Proteaceæ are almost entirely confined to the southern hemisphere. This observation originated with Mr. Dryander, and the few exceptions hitherto known to it, occur considerably within the tropic. The fact is the more deserving of notice, as their diffusion is very extensive in the southern hemisphere, not merely in latitude and longitude, but also in elevation; for they are not only found to exist in all the great southern continents, but seem to be generally, though very unequally, spread over their different regions: they have been observed also in the larger islands of New Zealand and New Caledonia; but hitherto neither in any of the lesser ones, nor in Madagascar. As in America, they have been found in Terra del Fuego, in Chili, Perù, and even Guiana, it is reasonable to conclude that the intermediate regions are not entirely destitute of them. But with respect to this continent, it may be observed, that the number of species seems to be comparatively small, their organization but little varied; and further, that they have a much

much greater affinity with those of New Holland than of Africa.

Of the botany of South Africa, scarce any thing is known, except that of the Cape of Good Hope, where this family occurs in the greatest abundance and variety; but even from the single fact of a genuine species of Protea having been found in Abyssinia by Bruce, it may be presumed, that in some degree they are also spread over this continent.

With the shores, at least, of New Holland, under which I include Van Diemen's Island, we are now somewhat better acquainted, and in every known part of these, Proteaceæ have been met with.

But it appears that, both in Africa and New Holland, the great mass of the order exists about the latitude of the Cape of Good Hope; in which parallel it forms a striking feature in the vegetation of both continents.

What I am about to advance repecting the probable distribution of this family in New Holland, must be very cautiously received; as it is in fact chiefly deduced from the remarks I have myself made in captain Flinders's Voyage, and subsequently during my short stay in the settlements of New South Wales and Van Diemen's Island, aided by what was long ago ascertained by Sir Joseph Banks, and by a very transitory inspection of an herbarium collected on the west coast, chiefly in the neighbourhood of Shark's Bay, by the botanists attached to the expedition of captain Baudin.

From knowledge so acquired I am inclined to hazard the following observations.

The mass of the order, though extending through the whole of the parallel already mentioned, is by no means equal in every part of it; but on the south-west coast forms a more decided

feature

feature in the vegetation of the country, and contains a far greater number of species than on the east:—and in that part of the south coast, which was first examined by captain Flinders, it seems to be more scanty than at either of the extremes.

On the west coast also, the species upon the whole are more similar to those of Africa than on the east, where they bear a somewhat greater resemblance to the American portion of the order.

From the parallel of the mass, the order diminishes in both directions; but the diminution towards the north is probably more rapid on the east than on the west coast.

Within the tropic, on the east coast, no genera have hitherto been observed, which are not also found beyond it; unless that section of *Grevillea*, which I have called *Cyclopteræ*, be considered as a genus. Whereas at the southern limit of the order several genera make their appearance, which do not occur in its chief parallel.

The most numerous genera are also the most widely diffused. Thus *Grevillea*, *Hakea*, *Banksia*, and *Persoonia*, extensive in species in the order in which they are here mentioned, are spread nearly in the same proportion; and they are likewise the only genera that have as yet been observed within the tropic.

Of such of the remaining genera, as consist of several species, some, as *Isopogon*, *Petrophila*, *Conospermum*, and *Lambertia*, are found in every part of the principal parallel, but hardly exist beyond it. Others, as *Josephia* and *Synaphea*, equally limited to this parallel, have been observed only towards its western extremity; while *Embothrium* (comprehending for the present under this name all the many-seeded plants of the order), which is chiefly found on the east coast, and makes very little progress towards the west, advances to the utmost limit of south latitude, and there ascends to the summits of the highest mountains.

Genera

Genera consisting of one or very few species, and which exhibit generally the most remarkable deviations from the usual structure of the order, are the most local, and are found either in the principal parallel, or in the highest latitude.

The range of species in the whole of the order seems to be very limited; and the few cases which may be considered as exceptions to this, occur in the most extensive genera, and in such of their species as are most strictly natives of the shores. Thus *Banksia integrifolia*, which grows more within the influence of the sea than any plant of the order, is probably also the most widely extended, at least in one direction, being found within the tropic, and in as high a latitude as 40°. It is remarkable, however, that with so considerable a range in latitude, its extension in longitude is comparatively small: and it is still more worthy of notice, that no species of this family has been found common to the eastern and western shores of New Holland.

The celebrated traveller Humboldt is the first who has expressly pointed out a remarkable difference in the distribution of the species of plants.

He observes that, while the greater number grow irregularly scattered and mixed with each other, there are some which form considerable masses, or even extensive tracts, to the nearly absolute exclusion of other species. Of plants growing thus in society, the greater number occur in the temperate zones; and of these, the most decided instances will readily present themselves to every botanist. I venture to add, that such as exist within the tropic, are found, either at considerable heights or on the sea-shores.

To this class very few of the Proteaceæ can be said to belong. *Protea argentea* of Linnæus is the most striking example among the

the African species; and my friend Mr. Ferdinand Bauer has observed a similar tendency in *Protea mellifera.*

Among the New Holland species, *Banksia speciosa* is the sole instance, and even that only in certain circumstances, of this manner of growth.

The favourite station of Proteaceæ is in dry stony exposed places, especially near the shores, where they occur also, though more rarely, in loose sand. Scarcely any of them require shelter, and none a good soil. A few are found in wet bogs, or even in shallow pools of fresh water; and one, the *Embothrium ferrugineum* of Cavanilles, grows, according to him, in salt marshes.

Respecting the height to which plants of this order ascend, a few facts are already known. The authors of the Flora Peruviana mention, in general terms, several species as being alpine; and Humboldt, in his valuable Chart of Æquinoctial Botany, has given the mean height of *Embothrium emarginatum* about 9300 feet, assigning it a range of only 300 feet. On the summits of the mountains of Van Diemen's Island, in about 43° south latitude, at the computed height of about 4000 feet, I have found species of *Embothrium,* as well as other genera hitherto observed in no other situation. *Embothrium,* however, as it is the most southern genus of any extent, so it is also, as might have been presumed, the most alpine of the family.

Two genera only of this order are found in more than one continent: *Rhopala,* the most northern genus, which, though chiefly occurring in America, is to be met with also in Cochinchina and in the Malay Archipelago; and *Embothrium,* the most southern genus of any extent, is common to New Holland and America.

From

From this account of the geographical distribution of the Proteaceæ, I proceed to make some general remarks on the structure and modifications of their different parts. The order, which consists of shrubs of the most rigid nature, or of trees of moderate size, contains also one herbaceous plant, my *Symphionema paludosum*, which however, except in this respect and in the union of the tops of its filaments, does not remarkably differ from the usual structure of the family.

The pubescence, which is very general in the order, consists either of a short and in many cases nearly impalpable tomentum, or of soft hairs which are either spreading, close pressed, or somewhat crisped, generally simple, but in some genera fixed by the middle, and in a very few cases glandular.

The existence or absence of pubescence in the adult leaves cannot always be depended upon in distinguishing species; but the short tomentum, especially of their under surface, is of greater consequence than the spreading hairs. In the bracteæ more reliance may be placed on it, and in the different parts of the flower I have never hesitated to employ it in my specific characters. In the calyx I have even derived the greatest advantage in some difficult genera, especially *Serruria*, from attending to its differences in direction.

Mr. Salisbury has introduced the pubescence of fruit into several of his generic characters, and in some I think with evident advantage, but in such only as where from its abundance and length it performs a function of manifest importance in assisting dissemination: hence I conceive it may be safely admitted into the characters of *Protea* and *Isopogon;* but I can perceive no advantage whatever in employing it in those of *Serruria* and *Spatalla.* For this reason too it ought not to be used in the capsular or drupaceous genera, in which indeed experience

proves

proves it to be of no further moment than in distinguishing species.

Dr. Smith has given it as his opinion, that from the disposition of leaves in New Holland plants no conclusion can safely be drawn as to their genera. This remark however appears to me only applicable to certain families, or rather genera; for in many tribes the plants of that country are altogether as constant in their leaves as in any other part of the world. In proof of this, it may be sufficient to mention the order Rubiaceæ; and there are many others in which I find nothing at all remarkable in this respect.

As to Proteaceæ, it must be acknowledged that in *Banksia* both verticillated and scattered leaves occur; but the leaves constantly in threes in *Lambertia* seems to me a circumstance of even greater importance than the number of flowers in the involucrum; and the opposite leaves of *Xylomelum* distinguish it at once both from *Rhopala* and *Hakea*.

Although the form and divisions of leaves in the order are variable in no common degree, yet there are certain genera, both among those of Africa and New Holland, which the leaves even in these respects assist in indicating. Thus, in that genus to which I have applied the name of *Protea* (the Erodendrum of Mr. Salisbury), and I believe also in my *Leucadendron*, there is no instance of a divided or toothed leaf; thus also the leaves of *Spatalla* are filiform and undivided, and those of *Serruria* filiform and almost always pinnatifid. Their dichotomous divisions in *Simsia* and *Franklandia* are still more characteristic; and their division and remarkable reticulation readily distinguish *Synaphea* from *Conospermum*.

The inflorescence in Proteaceæ, whatever use botanists may think proper to make of it in their generic characters, is of undoubted

doubted importance in determining genera, and even in the primary division of the order it appears to be of nearly equal consequence with the fruit itself; for, in dividing the order into two sections from the structure of the ovarium, it will be found that while all the single-seeded genera have each flower subtended by a proper bractea, or more rarely are without one, those with two or more seeds have, with very few exceptions, the flowers of their spikes or clusters disposed in pairs, each pair being furnished with only one bractea common to both flowers: it may also be observed that all the American and two thirds of the New Holland species have this mode of inflorescence, while only one instance of it occurs in Africa.

The single envelope of the stamina and pistillum in Proteaceæ I have, with Jussieu, denominated calyx, chiefly because the stamina, of equal number with its laciniæ, are constantly opposite to them, and from the close analogy subsisting between this family and that of Thymeleæ, in which I believe the greater number of botanists will allow that this envelope is really calyx: and as this latter argument may be considered as the stronger, I shall endeavour to establish the identity of this organ in these two families. In several of the *Thymeleæ*, especially in *Pimelea*, the lower part of the tube of the calyx is, as it were, jointed with the upper; after the falling off of which, it remains surrounding the fruit: this is also the case in several genera of Proteaceæ, as in *Adenanthos* of Labillardiere, in *Isopogon*, in *Grevillea Chrysodendron*, and still more remarkably in *Franklandia*, in which the persistent tube becomes indurated and even nearly woody, a change surely not likely to take place in a genuine corolla. But though I have thus adopted the language of Jussieu, I am decidedly of opinion that, in all families having a single en-

 velope,

velope, it will be still better to call it perianthium or perigonium, which latter term was proposed by Ehrhart, and is adopted by Decandolle.

A circumstance meriting the attention of the theoretical botanist, respecting the calyx in this order, is its invariable division into four leaves or segments; for the single exception noted by Linnæus in his description of the male flowers of *Brabejum*, he himself seems afterwards to have distrusted, from the manner in which he has introduced it into the amended generic character given in the Mantissa; and I may add, that in nearly 400 species of the order, which I have examined, I have not met with a single exception to this rule.

With this uncommon constancy in point of number, it is remarkable that there is, in the whole order, a strong tendency to irregularity in form, the various kinds of which are of great importance in characterizing genera.

Before the expansion of the calyx the margins of its segments are applied to each other; and from the unequal degrees of cohesion in many cases subsisting among them after expansion, several kinds of irregularity arise. I am not sure that any term has been contrived for this manner of æstivation, except it be the *æstivatio valvata* of Linnæus; but as he has not defined it, and as his commentator Reuss has given the very different æstivation of grasses as an example, I have, in introducing this circumstance into the general description of the order, specified it at length.

From the colour of the calyx, many genera of Proteaceæ are indicated with tolerable certainty. Thus *Synaphea* is distinguished from *Conospermum* by its yellow flowers; and no instance of yellow flowers has been met with in the numerous genera *Serruria* and *Spatalla*, nor any of purple in *Leucadendron*. In some genera

nera however, as in *Banksia* and *Isopogon*, it is evidently of very little importance.

The fleshy or scale-like bodies, which surround the ovarium in the greater number of plants of this family, are in many cases so manifestly secreting organs, that it is surprising Mr. Salisbury should hesitate in considering them as nectaria, and denominate them calli; a term which excludes the idea of secretion. But whatever their functions may be, great assistance may certainly be derived from their various modifications, in distinguishing genera. Their importance however in this respect, like that of all other parts, not only in this, but, as I apprehend, in every natural family, is very unequal, and in some cases seems to be entirely lost. Thus, in the genus *Leucadendron* as it is here constituted, they are wanting in several species, and in some I am inclined to think exist only in the males.

In most of the regular-flowered genera they are four in number, and alternate with the leaves or laciniæ of the calyx. In these genera they are also generally in the form of succulent scales, distinct, or more rarely cohering at their base, and in a very few instances adhering to the calyx; but in *Persoonia* they are nearly round and fleshy, and in *Bellendena*, *Symphionema*, *Simsia*, *Agastachya*, *Petrophila*, and *Isopogon*, they are entirely wanting.

In the irregular-flowered genera with two or many seeds their number is less than four, in most cases only one exists, in a few others three, and in some none.

Varieties in the structure or apparent origin of the stamina, afford, as might be expected, important generic characters. Their usual insertion in the order is in the concave tops of the laciniæ of the calyx; all considerable deviations from which may safely be employed in characterizing genera. In this way *Rhopala*,

pala, *Xylomelum*, and *Lambertia* are readily distinguished from *Embothrium*, *Grevillea*, and *Hakea*; and thus also *Persoonia* and *Brabejum* remarkably differ from *Gevuina;* while *Bellendena* differs from all others in having its stamina distinct from the calyx, affording however an indication of the real origin of these organs in the whole family.

The deviations from the usual structure of ANTHERÆ in this order are not many; but some of them are of so singular a nature as to constitute the essential characters of the genera in which they take place. These genera are *Simsia*, *Conospermum*, and *Synaphea*, all of which are most truly syngenesious; for not only do their antheræ firmly cohere together, but the corresponding lobes of these being, when considered separately, entirely open, are so applied to each other as to form but one cell, without a trace of any intermediate membrane. In *Simsia* the four antheræ are perfect, each consisting, as in the rest of the order, of two lobes, and therefore the whole before bursting constitute four cells. Whereas in *Conospermum* and *Synaphea* one filament is entirely barren, the two lateral ones have each a single-lobed anthera, and the fourth alone is perfect: hence before bursting the whole form only two cells.

This remarkable structure, which can only be ascertained before the opening of the calyx, necessarily escaped Dr. Smith in describing his *Conospermum*, for I conclude he had only the expanded flower before him, and the appearance of the antheræ in this state after their separation justifies him in referring the genus to Tetrandria: but according to the view now given of its structure, it can have no other pretension to a place in this class than its belonging to Proteaceæ; and the order Syngenesia Monogamia being abolished, it must be referred to Triandria.

The only remaining anomaly in these parts occurs in *Frank-*

landia,

landia, and consists in the anthera, or rather that portion of the filament on which it is fixed, adhering to the calyx through its whole length.

The figure of the POLLEN has been attended to by a few theoretical, but by hardly any practical botanists; yet I am inclined to think, not only from its consideration in this family, but in many others, that it may be consulted with advantage in fixing our notions of the limits of genera: and though its minuteness may perhaps always exclude it from a place in generic characters, yet it well deserves, to use the words of Linnæus when speaking of habit, to be "occulte consulendum."

Its usual figure in the order is triangular with secreting angles, a beautiful contrivance for insuring impregnation in a tribe, in which, from the very scanty, or in many cases apparent want of secretion by the stigma, it must otherwise have been very uncertain; for by this form and secretion, as well as by the singular œconomy of the calyx, it remains so long in contact with the stigma, as probably to compensate for the somewhat defective structure of that organ.

From this figure the principal deviation is in the extensive genera *Banksia* and *Josephia,* in all of which it is elliptical or oblong, and either straight or bent into a semilunar form; and in *Franklandia* and *Aulax,* where it is spherical. The only remaining exception with which I am acquainted is the original *Embothrium* of Forster, his *E. coccineum,* in which, as in *Banksia,* it is oblong; a circumstance that, together with the more important character of a regular club-shaped stigma, and some other differences, has determined me to separate it from all the other species of *Embothrium,* except *E. lanceolatum* of Flora Peruviana, whose pollen however remains to be examined.

The external modifications of the OVARIUM must be very cautiously

cautiously used in the generic characters of this family; even its being sessile or pedicellated is not always of sufficient importance, though I think Mr. Salisbury has done well in introducing it into his characters of *Serruria* and *Spatalla*, in both which genera I had overlooked it before the publication of his Essay.

Its internal structure, which ought always to be ascertained, will be found of the greatest importance in most cases, but fails in *Persoonia*, the species of which differ in having one or two seeds: it would seem however, in this case, that an irregularity in a point of such importance could not take place unaccompanied with other anomalies in the same organ, and accordingly such are found to exist in this genus, and will be mentioned when treating of the fruit.

Besides number, the insertion of the ovula is also to be attended to; for though this may generally be presumed from the situation of the radicula in the ripe seed, yet to this criterion there are several exceptions, even in the present order: thus, while the radicula constantly points downward in the whole of the order, the insertion of the ovulum is in many cases at the top or side of the cell of the ovarium. My observations on this subject are as yet incomplete; but, from those that I have made, I am inclined to think such differences will be connected with genera, or rather perhaps with particular kinds of fruit. Thus I conjecture, in *Leucospermum*, *Mimetes*, *Nivenia*, and *Spatalla*, the insertion to be uniformly lateral.

The style, though not subject to much variety in this family, will be found in a few cases to furnish generic characters. Thus in *Protea*, strictly so called, the persistent subulate style forms an important part of its character: and the persistency of the whole of the style in the greater number of species of *Grevillea* will probably be used by future botanists in distinguishing

them

them from that remarkable section of the genus, which I have at present united with them and called *Cyclopteræ.* Its length also, when compared with that of the calyx, seems in some cases to be of importance, as in distinguishing *Adenanthos* from *Spatalla*; but in general this circumstance can hardly be had recourse to except in specific characters.

The form of the STIGMA is in many cases of considerable importance in characterizing genera, a fact which could not escape the penetration of Dr. Smith when establishing his new genera of this order: thus its conical papilla in his *Conchium* (the *Hakea* of Schrader) will in many, though certainly not in all cases, distinguish it from *Grevillea:* but its form in both these genera will readily serve to separate them from *Xylomelum* and *Rhopala;* and thus also *Spatalla* remarkably differs from *Adenanthos.* Upon the whole, however, it seems that its obliquity is of greater importance than its form; for this, when existing in any great degree, is generally accompanied with a corresponding irregularity in the calyx: but as this irregularity is produced for the purpose of bringing all the antheræ into contact with the stigma, so its obliquity in the dioicous genera *Leucadendron* and *Aulax* is not attended with so great a degree of irregularity, which would here serve no end, impregnation depending on the pollen of different individuals, to insure which the surface of the stigma in these genera is rough with papulæ; a circumstance that, together with its form, readily distinguishes them from all others of the order.

In *Synaphea,* the stigma or summit of the style inosculates with the divisions of the barren filament, which in some species appear beyond it in horn-like processes, but in others are entirely lost in its substance. I am acquainted with nothing like this in the whole vegetable kingdom; and such a singularity

 alone,

alone, when occurring in several species, would have determined me to separate these plants from *Conospermum:* but being also accompanied by other remarkable differences, both of structure and appearance, no genus, I apprehend, can be better founded than this.

That the opinion of Christian Knaut and Vaillant respecting the non-existence of naked seeds is correct when anatomically considered, there can be no doubt; but the practical utility of deviating in this subject from the common language of botanists may still be questioned: and accordingly Gærtner, who was fully aware of the truth of their position, has nevertheless continued to describe the seeds of many plants as naked. I confess however I am inclined to adopt the opposite decision of the French botanists, at the head of whom is Richard, who has also proposed terms for distinguishing the various species hitherto confounded under the name of naked seeds. The fruit of the monospermous genera of Proteaceæ might probably be with advantage referred to that which he has termed *Ahena;* but as I am unwilling in the present paper to adopt any term not more generally sanctioned and understood than this, I shall content myself with calling those *nuces*, which are either not at all or but slightly compressed and not bordered; and apply the term *samara* to such as are either very much compressed, or with a less remarkable compression are surrounded or terminated by a membranaceous border: that I regard these distinctions however as in some cases of very little importance, may be inferred from this, that my genus *Leucadendron* includes both these kinds of fruit.

The first observation I have to offer on the fruits of Proteaceæ is, that there is no really bivalvular capsule in the order; a truth which was not perceived by Gærtner in describing his

Banksia

Banksia dactyloides (the Conchium dactyloides of Dr. Smith), and which has equally escaped Cavanilles and Labillardiere in their characters of *Hakea.* Dr. Smith has more cautiously omitted this consideration in his character of that genus, and Professor Schrader has accurately described the suture as only existing on one side: such fruits then are as truly folliculi as those of *Grevillea*, *Rhopala*, or *Embothrium*; and that the existence of a distinct placenta is by no means necessary to constitute this kind of fruit, is proved even by some genera of Apocineæ, to which family this term was first applied.

A circumstance occurs in some species of *Persoonia* to which I have met with nothing similar in any other plant: the ovarium in this genus, whether it contain one or two ovula, has never more than one cell; but in several of the two-seeded species a cellular substance is after fœcundation interposed between the ovula; and this gradually indurating acquires in the ripe fruit the same consistence as the putamen itself, from whose substance it cannot be distinguished; and thus a fruit originally of one cell becomes bilocular: the cells however are not parallel, as in all those cases where they exist in the unimpregnated ovarium, but diverge more or less upwards.

In all the seeds of this order there is a very manifest chalaza, which, whatever may be the point of insertion of the seed, is always situated at its upper extremity; and I have not been able to observe any fasciculus of vessels connecting it with the umbilicus in cases where this latter is placed in a different part of the seed.

I am not aware of any function being ascribed to the chalaza of seeds, except the nutrition of their proper membrane: but it appears to me too remarkable a part to be destined for this purpose only; and some observations I have made induce

me to suppose that it is the organ secreting the liquor amnios. This opinion I was first led to form by observing in some species of *Persoonia,* in which the inspissated remains of this fluid are visible in the ripe fruit, that it evidently originated in the *chalaza* and continued to adhere to it: nothing has hitherto occurred to invalidate this opinion, which is here however hazarded merely as a conjecture, requiring for its confirmation more numerous and decisive facts than I can at present adduce.

That the albumen of seeds is merely that condensed portion of the liquor amnios which remains unabsorbed by the embryo, seems to me very satisfactorily established; and as this fluid is in the early stage never wanting, all seeds may in one sense be said to have albumen: but while in some tribes this unabsorbed part in the ripe seed many times exceeds the size of the embryo, so there are others in which not a vestige of it remains; and such has hitherto been supposed to be the case with Proteaceæ: nor are the few exceptions with which I am at present acquainted of so decisive a nature as to invalidate this character of the order; for they occur only in some species of *Persoonia,* where the semifluid remains of this substance are observable between the cotyledons; and in *Bellendena,* in which it continues to form a thin fleshy coat on the inner surface of the proper membrane of the seed. From such instances however we may expect to find plants with a more copious albumen, which nevertheless it maybe necessary from the whole of their organization to refer to this family.

The radicula pointing towards the base of the fruit in all Proteaceæ is a circumstance of the greatest importance in distinguishing the order from the most nearly related tribes; and its constancy is more remarkable, as it is not accompanied by the usual position or even uniformity in the situation of the external umbilicus.

If

If Gærtner had not described the plumula of *Protea argentea*, I should not have hesitated to assert that it was inconspicuous in the whole order.

The number of cotyledons when more than two is a circumstance of little importance. In *Persoonia*, the only genus of the order in which a plurality of cotyledons has been observed, I am not even certain that their number is constant in those species in which this anomaly occurs.

In the following part of this essay it may be observed, that the genera into which I have subdivided the great African family *Protea*, are in most cases similar to those already proposed by Mr. Salisbury in the Paradisus Londinensis: from that essay however they are certainly not derived, but before its publication were formed and submitted to the judgment of Mr. Dryander, at whose suggestion they are now offered to the Society. That the results of an examination conducted by two observers wholly independent of each other, are so similar, will probably be considered as some proof of their correctness.

As Mr. Salisbury's generic names have the unquestionable right of priority of publication, I have in most cases adopted them, though I wish some of them had been differently constructed. But as I cannot accede to his application of the Linnæan names *Protea* and *Leucadendron*, I shall here, that I may not disturb the following arrangement, assign my reasons for differing from him in this respect; and as in so doing I am obliged to trace the progress of Linnæus's knowledge of the family, I persuade myself that this will in some degree compensate for the otherwise unwarrantable length of the discussion.

The name Protea, which originated with Linnæus, first occurs in the folio edition of his Systema Naturæ published in 1735;

1735; no generic characters are there given, but from the references to Boerhaave's figures it is evident that the genus is to be understood in the same extensive sense which he at length gave it in the second Mantissa. In 1737 appeared the Genera Plantarum, and in it for the first time the natural generic character of *Protea:* as in this work he only cites *Lepidocarpodendron* and *Hypophyllocarpodendron* of Boerhaave, it follows that here the genus is more limited, though its character is not peculiarly applicable to either of Boerhaave's genera referred to; and the description of antheræ and germen is not reconcilable to any plant whatever of the family. In the same year Hortus Cliffortianus was published, in which he resumes his first opinion of Protea, reducing to it all Boerhaave's genera, but referring to the character given in his own Genera Plantarum. It does not appear on what ground this change of opinion was formed; for in Clifford's garden, according to Viridarium Cliffortianum, there had only been two species, *Protea argentea* and *saligna,* neither of which had flowered, and the former was already lost; while in his Herbarium, now in the collection of Sir Joseph Banks, the specimens of all the three species given in the body of the work are without fructification, and of *Protea racemosa* added in the appendix there is no specimen whatever.

If Linnæus is to be considered in a great degree the author of the Prodromus Floræ Leydensis, published by A. Van Royen in 1740, as has been asserted by some of his pupils, and may be inferred from a passage in his Diary published by Dr. Maton, it must be noticed as his next work in the order of time; for from the same Diary it appears that he could only have been employed in its composition in 1738. In this work the genus Protea is given in the same extensive sense as in Hortus Cliffortianus, and no fewer than 21 species are characterized, of which however

however only two were in the Leyden garden, the rest being described from specimens in Van Royen's Herbarium.

In 1738 he also published his Classes Plantarum, in which, notwithstanding he appears to have composed it while engaged in the arrangement of Van Royen's collection, another fluctuation of opinion occurs, *Protea* being limited as in the first edition of the Genera Plantarum, and to *Leucadendros*, which here for the first time occurs, he refers the *Conocarpodendron* of Boerhaave.

In 1740 he published the second edition of Systema Naturæ, where the names *Protea* and *Leucadendron* are both given; but the references to Boerhaave are reversed, Protea being confined to his Conocarpodendron, and Leucadendron comprehending his other two genera. In this sense they also appear in the second edition of the Genera Plantarum published in 1742, in which the character of Leucadendron is first given, some of whose species he must, from the annexed asterisk, have seen recent: his description of corolla and pistillum is only applicable to Lepidocarpodendron.

In 1745 Linnæus received the Herbarium of Herman, from which he composed his Flora Zeylanica: the fourth volume of this collection containing a mixture of Ceylon and African plants, the latter are not noticed in this work; but from an inspection of the Herbarium itself, now in the Banksian collection, it appears that he had added generic names to most of them: of Proteæ only three species exist in the volume, of which *Protea conocarpa* is one: of this there are on the same page two specimens, whose heads of flowers are separately pasted; under one of these specimens he has written Leucadendron, and under the second Protea; to a specimen of *Protea Serraria* on a different

page

page he has given the name of Santolina. These facts are mentioned to prove, that at this period his knowledge of the family must have been chiefly derived from Boerhaave's figures, and perhaps from specimens which he had casually seen.

In 1748 the sixth edition of Systema Naturæ appeared, where the essential characters of Protea and Leucadendron first occur, both of them evidently derived from the natural characters previously given.

In 1753 the Species Plantarum, the most accurate of all his works, was given to the world; both genera are found in it, their species characterized, and trivial names for the first time applied to them: of Protea there are only two species, *P. argentea* and *fusca;* to the former however he referred as varieties *P. saligna, conifera,* and three others; to the whole adding the following observation, which may be supposed to contain his chief reason for applying his name Protea to this genus rather than to that for which in his Classes Plantarum he had first intended it. "Planta naturalis in patria argentea excellit fronde inter arbores nitidissima omnium; at culta et captiva extra patriam exuit decus; variat dein etiam domi mille modis verè Protea."

At this time he had in his Herbarium a specimen without fructification of *Protea argentea* properly so called; but of its supposed varieties or of *P. fusca* none whatever. Of his genus *Leucadendron* he had only one species, *L. proteoides,* afterwards called *Protea purpurea,* a plant differing in many respects from the tribe to which he had, though not without hesitation, referred it.

In 1754 the fifth edition of Genera Plantarum appeared, in which the characters of both genera remain exactly as in the second.

In 1759 was publishd the tenth edition of Systema Naturæ, where

where the essential generic characters are nearly the same as in the sixth, and the specific characters are copied from the Species Plantarum.

Of this latter work the second edition appeared in 1762: it contains two additional species of *Leucadendron* described from Burmannus's Collection and Plantæ Africanæ: Protea argentea of the first edition is here divided into two species; the first *Protea argentea* now so called, the second comprehending *P. saligna, conifera*, and three other nearly related species: to this latter the greater part of the observation added to *P. argentea* of the first edition is annexed, though evidently less applicable to the species thus divided.

In the sixth edition of Genera Plantarum printed in 1764 no alterations are made in the characters of these two genera.

In Mantissa prima published in 1767, two new species of Leucadendron are described: neither of these, however, he had in his Herbarium: the first, *Leucadendron speciosum*, he had probably accidentally seen, the antheræ of which are described as filaments, and their callous apices alone as true antheræ: the description of the second, *L. pinifolium*, is by Van Royen.

In the twelfth edition of Systema Naturæ published in the same year, the species of Leucadendron are arranged in a different, and, as the author intended, a more natural order; from which it may be concluded that at this time considerable additions had been made to his Herbarium: but *L. glomeratum* is unaccountably omitted. Protea here receives again *P. Levisanus*, the P. fusca of the first edition of the Species Plantarum, which in the second had been referred to Brunia.

In Mantissa altera published in 1771, the two genera are united under the name of Protea; new characters are given to the

the species, and most of them are described from specimens then in his Herbarium; five species are added which had already been published by the accurate Bergius; and three, *P. totta, strobilina* and *parviflora*, are here first met with: in his description of the last, he seems to suspect it to be a male plant, which we now certainly know to be the case. *P. glomerata* is here again taken up; but *Protea acaulis, cancellata* and *conocarpa* are omitted; and *Protea conifera* of the second edition of the Species Plantarum is subdivided into three species, *P. conifera, pallens* and *saligna*.

In the thirteenth edition of the Systema Vegetabilium published in 1774, the essential character of the genus is adapted to its present state, and no alteration occurs among the species, except that *P. speciosa* is considered as a variety of *P. Lepidocarpodendron.*

From this statement it appears, that Linnæus in his earlier works had not sufficient materials for obtaining an accurate notion of this family; and hence that perpetual fluctuation of opinion concerning it, which has been now pointed out, and may in few words be recapitulated.

1st, He gave the genus Protea the same extent which he at length assigned to it in the Mantissa.

2dly, He limited it, leaving unnoticed that part to which at a latter period he exclusively applied the name.

3dly, He resumed his first opinion.

4thly, He subdivided it into two genera, giving them the same names which are adopted in the present paper.

5thly, He continued the subdivision but reversed the names, and for a reason, as it would seem, which is now known to be founded in error.

And

And lastly, Having acquired more perfect materials and perceiving the insufficiency of his characters, he united them together, thus ending exactly where he commenced.

But, as in this he has been universally followed for nearly forty years, *Protea* can no longer be considered as more strongly associated with any one species of the genus than another; and therefore this name so familiar to botanists, if the necessity of again subdividing the genus be allowed, ought certainly to be given to that part which is best known, and which contains the greatest number of published species, especially if the name be at least as applicable to this as to any other subdivision: now this part unquestionably is the Lepidocarpodendron of Boerhaave, the Protea of the first edition of the Genera Plantarum and Classes Plantarum, and of the present Essay.

The question respecting the application of the name *Leucadendron* is reducible to a smaller compass. Mr. Salisbury is aware that the Linnæan character of the genus is only applicable to Lepidocarpodendron of Boerhaave; and therefore, consistently with the reasons which determined him in his application of the name Protea, Leucadendron ought to have been retained for that which he has called Erodendrum in Paradisus Londinensis; and this it seems he would have done, had it not been differently used by Plukenet, whom he professes to follow in this respect. But as rejecting Linnæan names when accompanied by characters, for those of Plukenet who never published a single character, is somewhat unusual, it must be supposed to have arisen from the latter author's more appropriate use of this significant name, while it may also be presumed that Linnæus's application of it is wholly unsuitable; and it is at least to be expected that in his own application he is consistent with Plukenet, whom he means to follow.

 To

To determine how far this is the case, I have examined the figures published by Plukenet under the name of *Leucadendros*, and also his Herbarium, which forms part of the Sloanean collection in the British Museum. Of his three species so named the first is *Protea argentea*, his "*Leucadendros africana arbor tota argentea sericea foliis integris, Atlas Tree, D. Herman.*" of which the figure represents a branch without fructification, and a separate fruit possibly of the same plant, but rather, as I suspect, belonging to a different species of the same genus.

On the same plate is figured a single leaf, in all probability belonging to *P. conocarpa*, with the following name, "*Leucadendro similis africana arbor argentea folio summo crenaturis florida, an Leucadendros africana foliis serratis D. Herman.?*" The separate fruit accompanying this probably does not belong to it, but to some species of that division of Leucadendron which Mr. Salisbury has called Euryspermum.

The third species, his "*Leucadendros africana, seu Scolymocephalus angustiori folio apicibus tridentatis,*" is a good figure of a flowering branch of *Protea cucullata.*

It could not certainly from his publications alone be understood why the name *Leucadendros* is applied to these three plants so little alike, while different names are given to species much more nearly related to some of them than they are to each other: of this however the solution is to be found in his Herbarium; on consulting which I find, that after the publication of *Protea argentea*, with whose flowers he was unacquainted, he had acquired flowering specimens of *Protea hirta*, and had supposed these two species to be the same, pasting between two leaves of *argentea* four loose heads of *hirta*, and under the whole copying in his own hand the name *Leucadendros*, &c. at full length from his Phytographia. This satisfactorily explains why he referred

P. cucullata

P. cucullata to Leucadendros, its flowers being very similar to those of *Protea hirta.* As to his application of this name to *P. conocarpa*, it could only proceed from his total ignorance of its fructification; for, as he has figured a nearly related species, *P. hypophylla*, under the very different name of *Thymelea*, &c., it is reasonable to conclude, that had he seen the flower of *P. conocarpa* he would have given it the same generic name. This *P. conocarpa* however, of which it may truly be said he knew nothing, and concerning which at least no information is to be derived from his works, is the only species of the three which belongs to Mr. Salisbury's genus Leucadendron.

But the original *Leucadendros* of Herman, of Plukenet, and of Linnæus himself, is *Protea argentea*, the only plant of the family to which the name can properly be applied; to this therefore I have assigned it in the following arrangement.

Before proceeding to this arrangement, I am happy in having an opportunity of acknowledging that assistance which has so liberally been afforded me.

To the invaluable Herbarium and Library of Sir Joseph Banks I have on this, as on all other occasions, enjoyed the freest access; an advantage which has been greatly enhanced by the opportunity it has given me of consulting my friend Mr. Dryander, both as to the formation of genera and respecting synonyms, on which points his sound judgment and unrivalled erudition so well enable him to decide.

To Dr. Smith I am indebted for the permission of inspecting the Linnæan Collection, and for the most friendly and satisfactory answers to the queries on this subject which he allowed me to put to him.

Mr. Lambert, whose Herbarium in this tribe is only surpassed by

by that of Sir Joseph Banks, has, with his accustomed liberality, submitted it without reserve to my examination.

Mr. Hibbert, who for many years possessed the most extensive collection of living Proteas that has ever been formed, and who also received from his intelligent collector Mr. Niven a valuable Herbarium of native specimens, most obligingly permitted me to examine these, and even to dissect such as were new. For the like privilege I am indebted to the friendship of Mr. Aiton of Kew, who sent me his whole collection, peculiarly valuable as containing many of the original specimens of Mr. Masson: and lastly, I have to acknowledge the great assistance I have derived from the extensive collection presented to this Society by my friend Dr. Roxburgh, who during his short residence at the Cape appears to have paid particular attention to this tribe of plants, and who, besides the many new species discovered by him, has given a greater value to his Herbarium by numerous observations on the sexes, the size, and places of growth, which I have every where inserted on his authority.

PROTEACEÆ.

DIAGNOSIS.

Calyx tetraphyllus v. quadrifidus, æstivatione valvatâ.
Corolla nulla.
Stamina quatuor, (altero nunc sterili,) laciniis calycis opposita.
Ovarium unicum, liberum. *Stylus* simplex.
Stigma subindivisum.
Semen (pericarpii varii) exalbuminosum.
Embryo dicotyledoneus, (rarò polycotyledoneus,) rectus. *Radicula* infera.

DESCRIPTIO.

DESCRIPTIO.

Frutices v. Arbores vix excelsæ; rarissimè Herbæ.

Rami in plerisque annotino-umbellati.

Folia sparsa, nunc verticillata v. opposita, persistentia, exstipulata, indivisa v. variè dentata, seu incisa profundiùsve laciniata, rarissimè verè composita.

Inflorescentia subspicata, modò laxius, in racemum v. corymbum floribus sæpè geminatis, nunc densiùs congesta in capitulum, vel aggregata supra receptaculum planiusculum, involucro persistenti, sæpiùs imbricato, subtensum: in quibusdam quasi abortione, uniflorum, indicante involucro calyculum tunc æmulante. *Bracteæ* dum flores geminati singulis paribus communes; in capitatis persistentes, sæpiùsque auctæ et induratæ, rarò connatæ; in aggregatis nanæ, plerumque deciduæ, quandoque nullæ.

Flores in plerisque hermaphroditi perfecti, nunc organorum vitio diclines.

Calyx tetraphyllus, foliolis distinctis v. sæpiùs plùs minùs arctè cohærentibus tubulosus; *limbo* quadrifido, æquali, laciniis subspathulatis; nunc irregulari sive ex earum cohæsione rariùsve inæqualitate: coloratus, subcoriaceus, avenius, extùs sæpè pubescens, intùs glaber rariùsve barbâ utplurimùm partiali instructus, valvatìm aperiens, ante expansionem marginibus subtruncatis mutuò cohærentibus: deciduus v. marcescens, dum tubulosus sæpiùs a basi tandem quadrifidâ abscedens, quandoque basi integrâ diutiùs persistente.

Corolla nulla.

Stamina quatuor, (altero nunc sterili,) foliolis calycis opposita, iisdemque sæpissimè inserta, in plerisque juxta apicem, quandoque prope medium v. basin; rarò hypogyna; calycem nunquam superantia.

Fila-

Filamenta brevissima v. mediocria, rarissimè partim cohærentia.

Antheræ adnatæ, biloculares, lineares, loculis per axin longitudinaliter dehiscentibus; rarò bipartitæ lobis respondentibus vicinarum connatis loculumque unicum tandem bivalvem efformantibus, altero lobo in quibusdam deficiente.

Pollen triangulare, angulis subsecernentibus, quandoque ellipticum v. lunatum, rarò sphæricum.

Squamulæ Glandulæve hypogynæ v. quatuor foliolis calycis alternantes, distinctæ seu connatæ; v. pauciores et intùs secundæ, interdum nullæ, rarissimè staminuliformes.

Ovarium unicum, liberum, sæpè pedicellatum, pedicello rarissimè articulato, mono-di-poly-spermum quandoque biloculare: ovulis apice, basi v. latere ovarii affixis.

Stylus simplex, terminalis.

Stigma in plerisque indivisum, modò emarginatum rariùsve bifidum; sæpè obliquum, figurâ varium, plerumque glabrum, quandoque papulosum, hispidulum v. tomentosum.

Pericarpium, Nux, Samara v. *Drupa* monosperma rarò disperma, vel *Folliculus* coriaceus seu ligneus, di-poly-spermus basi, marginibusve suturæ seminifer; rarò bilocularis, dissepimento libero parallelo bipartibili!

Semen sessile, ventricosum, v. sæpiùs compressum, in folliculatis sæpè alatum; exalbuminosum, apice *Chalazâ* venosâ insignitum, *Rhaphi* nullâ.

Embryo dicotyledoneus, rarò polycotyledoneus, rectus, albus.

Radicula infera, brevis.

Plumula vix conspicua.

1. AULAX.

PROTEACEÆ.

I. FRUCTUS CLAUSUS.

A. ANTHERÆ DISTINCTÆ.

a. ANTHERÆ A CALYCE LIBERÆ.

† *Flores dioici*, (organis imperfectis.) *Stigma* femineorum obliquum, emarginatum, papulosum. pag.

1. *Nux* exserta, (barbata :) *squamis* capituli feminei subulatis. *Masculi flores* racemosi .... AULAX.......... (49)
2. *Nux* v. Samara *squamis* dilatatis strobili inclusa. *Masculi flores* capitati .... LEUCADENDRON... (50)

†† *Flores hermaphroditi*, raro polygami dioici, *stigmate* tunc verticali.

α. *Antheræ* apicibus concavis calycis immersæ.

§ *Ovarium monospermum*. *Nux* subcrustacea v. *Samara*.

a. *Squamulæ* Glandulæve nullæ hypogynæ.

1. *Nux* lenticularis, hinc barbata v. *Samara* glabra. *Calyx* totus simul deciduus .... PETROPHILA...... (67)
2. *Nux* ventricosa, undique æqualiter barbata. *Calyx* tubo gracili diutiùs persistenti .... ISOPOGON......... (71)

b. *Squamulæ* v. Glandulæ quatuor hypogynæ.

‖ *Calyx* irregularis, labiatus, laciniis tribus (raro omnibus) cohærentibus.

1. *Calyx* bipartibilis. Labii majoris laminæ staminiferæ cohærentes. *Stylus* persistens, subulatus .... PROTEA.......... (74)
2. *Calyx* tubulosus. *Laminæ* staminiferæ distinctæ. *Stylus* deciduus, filiformis .... LEUCOSPERMUM... (95)

‖‖ *Calyx* laciniis quatuor distinctis (sæpiùs æquidistantibus).

α. *Capitulum* indefinitè multiflorum, subpaleaceum. *Involucrum* dum adsit imbricatum.

1. *Nux* brevissimè pedicellata. *Paleæ* persistentes. *Receptaculum* convexum .... SERRURIA........ (112)
2. *Nux* sessilis. *Paleæ* deciduæ, angustissimæ v. nullæ. *Receptaculum* planum .... MIMETES......... (105)

β. *Involucrum* uniflorum v. definitè pauciflorum. *Paleæ* nullæ.

‡ *Squamulæ hypogynæ* a calyce toto deciduo liberæ.

* *Stigma* verticale. *Calyx* regularis.

1. *Nux* sessilis, nitens, basi integrâ. *Involucrum* fructiferum induratum, 4-ph., 4-flor. .NIVENIA......... (133)
2. *Nux* pedicellata v. basi emarginata. *Involucrum* fructiferum non mutatum .... SOROCEPHALUS. . (139)

** *Stigma* obliquum, dilatatum. *Calycis* laciniâ quartâ sæpè majore .... SPATALLA........ (143)

‡‡ *Squamulæ hypogynæ* infra adnatæ basi persistenti calycis .... ADENANTHOS.... (151)

§§ *Ovarium dispermum*. *Drupa* baccata, putamine osseo. *Stigma* obliquum, dilatatum. *Calyx* irregularis .... GUEVINA......... (165)

β. *Antheræ* exsertæ. *Stamina* medio v. basi calycis inserta v. hypogyna.

† *Glandulæ* hypogynæ distinctæ s. connatæ. v. *Stamina* quatuor sterilia. *Drupa* putamine osseo.

* *Drupa* exsucca, tomentosa. *Filamenta* basi calycis inserta. *Vaginula* hypogyna. *Flores* polygami .... BRABEIUM...... (164)

** *Drupa* baccata. *Flores* hermaphroditi.

1. *Glandulæ* hypogynæ carnosæ. *Stamina* medio calycis supra recurvi inserta. *Ovarium* pedicellatum .... PERSOONIA...... (159)
2. *Glandulæ* hypogynæ staminuliformes. *Stamina* basi calycis supra angustati inserta. *Ovarium* sessile .... CENARRHENES... (158)

†† *Glandulæ* nullæ hypogynæ.

§ *Stamina* calyci inserta.

1. *Filamenta* distincta. *Stigma* unilaterale. *Ovarium* monospermum, trigonum (imberbe) .... AGASTACHYS.... (158)
2. *Filamenta* apice cohærentia. *Stigma* subtruncatum. *Ovarium* dispermum, teres .... SYMPHIONEMA... (157)

§§ *Stamina* receptaculo inserta. *Samara* aptera, 1-2-sperma. *Stigma* simplex .... BELLENDENA.... (166)

b. ANTHERÆ ADNATÆ TUBO CALYCIS HYPOCRATERIFORMIS ! *Nux* fusiformis, pedicellata ; apice dilatato papposo .... FRANKLANDIA.... (157)

B. ANTHERÆ COHÆRENTES, vicinarum lobis proximis loculum unicum constituentibus ! tandem distinctæ.

α. *Calyx* regularis. *Antheræ* exsertæ, omnes bilobæ .... SIMSIA........... (152)

β. *Calyx* ringens. *Antheræ* inclusæ, laterales dimidiatæ ; *Stamine* quarto sterili.

1. *Stigma* liberum. *Anthera* labii superioris biloba .... CONOSPERMUM... (153)
2. *Stigma* filamento sterili cohærens. *Anthera* media labii inferioris biloba .... SYNAPHEA...... (155)

II. FRUCTUS

MISSOURI
BOTANICAL
GARDEN.

II. FRUCTUS DEHISCENS.

A. UNILOCULARIS.

a. Ovarium dispermum. *Fructus* quandoque monospermus.

† *Antheræ* apicibus concavis calycis immersæ. *Glandula* hypogyna unica dimidiata, v. nulla. pag.

* *Glandula* nulla hypogyna. *Stigma* conicum. *Semen* apterum........Anadenia......(166)

** *Glandula* hypogyna dimidiata, quandoque lobata.

1. *Folliculus* (coriaceus v. ligneus) loculo centrali. *Semina* alâ apicis dum adsit nucleo breviore........Grevillea......(167)
2. *Folliculus* incrassato-ligneus, loculo excentrico. *Semina* alâ apicis nucleo longiore........Hakea.......(178)

†† *Antheræ* exsertæ, apicibus calycis revolutis. *Glandulæ* hypogynæ quatuor, distinctæ v. connatæ.

‡ *Involucrum* coloratum, deciduum, uni-multiflorum, receptaculo plano. *Semina* marginata. *Stigma* subulatum........Lambertia.....(187)

‡‡ *Involucrum* nullum. *Flores* spicati.

α. *Semina* apice (solùm) alata.

1. *Folliculus* incrassato-ligneus, loculo excentrico. *Stigma* clavatum. *Flores* polygami........Xylomelum.....(189)
2. *Folliculus* coriaceus, loculo centrali. *Stigma* subcylindraceum........Orites.........(189)

β. *Semina* utrinque alata, marginata. *Stigma* clavatum. *Folliculus* ligneo-coriaceus........Rhopala.......(190)

b. Ovarium tetraspermum ! *Calyx* regularis. *Antheræ* exsertæ. *Semina* apice alata. *Glandulæ* quatuor hypogynæ........Knightia.......(193)

c. Ovarium polyspermum. *Calyx* irregularis, apicibus concavis staminiferis.

§ *Semina* apice alata.

* *Stigma* verticale, clavatum. *Glandula* hypogyna unica, semiannularis........Embothrium....(195)

** *Stigma* obliquum, unilaterale.

1. *Glandula* nulla hypogyna. *Stigma* dilatatum, concavum. *Involucrum* (racemi) nullum........Oreocallis.....(196)
2. *Glandula* unica hypogyna, subannularis. *Stigma* clavatum, convexum. *Involucrum* (racemi) deciduum........Telopea.........(197)
3. *Glandulæ* tres hypogynæ, secundæ. *Stigma* dilatatum, concavum. *Calycis* foliola distincta........Lomatia.........(199)

§§ *Semina* basi alata ! *Glandula* hypogyna unica dimidiata. *Stigma* dilatatum, concavum........Stenocarpus....(201)

B. BILOCULARIS, dissepimento libero, bifido.

1. *Amentum* paribus flosculorum tribracteatis........Banksia........(202)
2. *Receptaculum commune planum*; involucro imbricato; flosculis indeterminatim confertis, paleis solitariis v. nullis........Dryandra......(211)

1. AULAX.

Berg. Cap. 33. *Salisb. Parad.* 67.

Char. Gen. *Flores* dioici, organis imperfectis.

Masc. racemosi: *Calyx* tetraphyllus foliolis medio staminiferis.

Fem. *Stigma* obliquum, clavatum, hispidulum, emarginatum. *Nux* exserta, ventricosa, barbata, squamis capituli subulatis.

Habitus. Frutices *glaberrimi.* Folia *integerrima.* Flores *terminales, unibracteati.* Masculi *in racemis aggregatis, nudis.* Feminei *in capitulo solitario, cincto foliolis intùs auctis appendiculo aceroso-multifido, capitulo quasi abortivo racemis exterioribus maris analogo,* (*interdum florifero, fide* Cel. Salisburii.)

1. A. *pinifolia*, foliis filiformibus canaliculatis.

Masc. Pini foliis planta Africana Cyperi capitulis. *Herm. Afr.* 18. *Burm. Afr.* 193. *t.* 70. *f.* 3.

Pini folio planta Capensis floribus spicatis. *Raj. Hist.* 3. *App. p.* 247. *n.* 47.

Pini facie frutex africanus, Cyperi capitulis umbellatis. *Sher. in Raj. Hist.* 3. *Dendr. p.* 130.

Aulax pinifolia. *Berg. Cap.* 33.*

Leucadendron pinifolium. *D. Van Royen in Linn. Mant.* 36.* *Syst. Nat. ed.* xii. *t.* 2. *p.* 110.

Protea pinifolia. *Linn. Mant.* 187. (sed specimen maris *A. umbellatæ* habebat in Herb.) *Syst. Nat. ed.* xiii. *t.* 2. *p.* 117. *Thunb. Diss. n.* 20.* *Prod.* 26. *Willd. Sp. Pl.* 1. *p.* 515. *Lam. Illust. Gen.* 1. *p.* 237. *n.* 1244. *And. Repos.* 76. bona. *Poiret. Encyc. Botan.* 5. *p.* 651.

Fem. Scolymocephalus africanus foliis Rorismarini acutis. *Herm. Afr.* 20. *Raj. Hist.* 3. *Dendr. p.* 10.

Conophorus capensis pini folio. *Petiv. Gazoph.* 3. *n.* 458. *t.* 25. *f.* 7. 8*vo. p.* 40.

MISSOURI BOTANICAL GARDEN.

Lepidocarpodendron; foliis angustissimis, gramineis; fructu cancellato; semine corònato. *Boerh. Lugd. Bat.* 2. *p.* 193. *c. tab.*

Leucadendron cancellatum. *Linn. Sp. Pl. ed.* 1. *p.* 91. *ed.* 2. *p.* 134. omiss. in Mant. et Syst. Veg. ed. xiii.

Protea bracteata. *Thunb. Diss. n.* 24.* *tab.* 1. *Prod.* 26. *Linn. Suppl.* 118. *Willd. Sp. Pl.* 1. *p.* 517. *Lam. Illust. Gen.* 1. *p.* 238. *n.* 1245. *Poiret. Encyc. Botan.* 5. *p.* 652.

Hab. In Africæ Australis montibus; prope Platte-kloof, Hottentots-Holland, et alibi. (v. s. in Herb. plur.)

Obs. Pollen globosum.

2. A. *umbellata*, foliis planis spathulato-linearibus.

Masc. Protea aulacea. *Thunb. Diss. n.* 33.* *tab.* 2. bona. *Prod.* 26. *Willd. Sp. Pl.* 1. *p* 520. *Lam. Illust. Gen.* 1. *p.* 237. *n.* 1243. *Poiret. Encyc. Botan.* 5. *p.* 651.

Fem. Protea umbellata. *Thunb. Diss. n.* 34.* *Prod.* 26. *Linn. Suppl.* 118. *Willd. Sp. Pl.* 1. *p.* 520. *Lam. Illust. Gen.* 1. *p.* 237. *n.* 1242. *And. Repos.* 248. *Poiret. Encyc. Botan.* 5. *p.* 650.

Hab. In Africæ Australis montibus, prope Prom. B. Spei; Taffelberg, Platte-kloof, &c. (v. s. in Herb. Banks.)

Obs. Pollen subglobosum, obtusissimè trigonum.

2. LEUCADENDRON.

Herm. Pluk. Linn. in Class. Plant. Conocarpodendra, *t.* 195. 197. 200. 202. 203. 204. *Boerh.* Protea. *Linn. Gen. Pl. ed.* 2. 5. 6. Conocarpos. *Adans. Famill.* Protea, Euryspermum, Chasme. *Salisb. Parad. Lond.*

Char. Gen. *Flores* dioici, organis imperfectis; capitati.

Fem. *Stigma* obliquum, clavatum, emarginatum, hispidulum.

Nux

Nux v. *Samara* monosperma, squamis (quandoque cohærentibus) strobili inclusa.

HABITUS. Frutices, *rarò Arbores, sæpe sericeo-tomentosi.* Folia *integerrima.* Capitula *terminalia, solitaria ; bracteis imbricatis foliisve verticillatis et subcoloratis plerumque cincta.*

OBS. The separation of sexes in the genus Protea of authors, obscurely suspected by Linnæus himself in his *Protea parviflora*, and afterwards more expressly by Lamarck in *P. pinifolia*, was first ascertained in *Aulax* and the present genus (as Mr. Dryander informs me) by our countryman Masson, during his last residence at the Cape of Good Hope, and is beautifully illustrated by that eminent botanical painter Mr. Francis Bauer, in his unpublished drawings preserved in the Banksian collection. Numerous observations on the same subject have also more recently been made by Dr. Roxburgh and Mr. Niven, who have bestowed much pains in ascertaining its limits, of which, as far as regards the African part of the family, Mr. Salisbury has given an accurate account in his Essay already quoted. The Dissertation of Thunberg, who was wholly unacquainted with this separation of sexes in these plants, is necessarily imperfect, and he has, in several cases, described the different sexes as distinct species ; and thus also Bergius has founded his genus *Aulax* on the male of a species, whose female he had previously published as a *Leucadendron.* On the other hand, Jussieu, deceived by the resemblance in inflorescence, between *Brabejum* and the spiked species of Protea, has erroneously suspected these to be monoicous, while he has totally overlooked the truly dioicous nature of the present genus.

 † *Nux*

† Nux *ventricosa,* stylo *toto calyceque persistentibus.*

1. L. *argenteum*, arboreum, foliis lanceolatis argenteis : marginibus ramisque villosis, bracteis involucrantibus abbreviatis tomentosis, calycibus masculis sericeis.

Scolymocephalus Africana, foliis sericeis argenteis longis acutis. *Herm. Cat.*

Leucadendros Africana, arbor tota argentea, sericea, foliis integris. Atlas Tree. D. Herman. *Pluken. Phyt. t.* 200. *f.* 1. ramulus sine floribus nuce separatâ ; fortè speciei distinctæ.

Conifera salicis facie, folio et fructu tomento sericeo candicante obductis, semine pennato. *Sloane in Philos. Trans.* 17. *p.* 664. strobilus cum fructu separato.

Frutex Æthiopicus conifer, foliis lanuginosis omnium maximis. *Breyn. Prod.* 2. *p.* 66.

Argyrodendros africana foliis sericeis et argenteis. *Com. Hort.* 2. *p.* 51. *t.* 26. *Raj. Hist.* 3. *Dendr. p.* 9.

Globularia Africana frutescens Thymeleæ folio lanuginoso. *Tournef. Inst.* 467 ?

Conocarpodendron ; foliis argenteis, sericeis, latissimis. *Boerh. Lugd. Bat.* 2. *p.* 195. *c. tab.*

Scolymocephalus africanus, folio crasso nervoso sericeo. *Weinm. Phyt.* 4. *p.* 293. *t.* 900.

Brückm. Epist. Itin. 2. *p.* 8. *t.* 4. strobilus.

Protea foliis lanceolatis integerrimis acutis hirsutis nitidis. *Hort. Cliff.* 29. *Virid. Cliff.* 8. *Roy. Lugd. Bat.* 184. *Wachend. Ultraj.* 201.

Protea argentea *α. Sp. Pl. ed.* 1. *p.* 94.

Protea argentea. *Sp. Pl. ed.* 2. *p.* 137. *Mant.* 194. *Thunb. Diss. n.* 48.* *Prod.* 27. *Gært. Sem.* 1. *p.* 239. *t.* 51. *Willd. Sp. Pl.* 1. *p.* 529. *Lam. Illust. Gen.* 1. *p.* 237. *n.* 1236. *t.* 53. *f.* 1. *Poiret. Encyc. Botan.* 5. *p.* 648.

Hab.

Hab. In Africâ Australi, ad radices lateraque montium, prope Prom. B. Spei. (v. s. in Herb. Banks. &c.)

Obs. Squamulas quatuor hypogynas, longas, angusto-lineares, in floribus masculis observavi: femineos nondum vidi.

2. L. *plumosum*, fruticosum, foliis lineari-lanceolatis muticis glabris subsericeisve: basi attenuatâ tortâ, involucris calycibusque masculis glabris; femineis persistentibus plumosis quadrifidis, nucibus cuneato-oblongis villosis.

Masc. Protea parviflora. *Linn. Mant.* 195.* *Syst. Veg. ed.* xiii. *p.* 119. *Thunb. Diss. n.* 40.* *tab.* 4. bona. *Prod.* 27. *Willd. Sp. Pl.* 1. *p.* 524. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1220. *Poiret. Encyc. Botan.* 5. *p.* 643.

Fem. Protea obliqua. *Thunb. Diss. n.* 39.* *Prod.* 27. *Linn. Suppl.* 117.* fide descriptionis, nullum enim specimen in herbario, monente Cel. Smith. *Willd. Sp. Pl.* 1. *p.* 524.

Protea plumosa. *Hort. Kew.* 1. *p.* 127.

Hab. In Africâ Australi, prope Fransche Hoek et alibi haud infrequens. (v. s. in Herb. Banks.)

Obs. Squamulæ nullæ hypogynæ in mare: femina ad anthesin haud observata.

*3. L. *retusum*, fruticosum, foliis oblongo-spathulatis glabris: basi attenuatis; callo apicis subretuso, ramis tomentosis, involucris pubescentibus, calycibus masculis glabris, femineis plumosis quadripartitis, nucibus glabris obovato-orbiculatis.

Hab. In Africæ Australis montibus prope Prom. B. Spei; Picket-Berg. (v. s. in Herb. Soc. Linn.)

Obs. Strobilus cum Nucibus et Calyce ad basin tabulæ 199. *Boerh. Lugd. Bat.* vel ad hanc vel ad sequentem speciem pertinere videntur.

*4. L. *spa-*

*4. L. *spathulatum* fruticosum, foliis oblongo-spathulatis: basi attenuatis; callo apicis acutiusculo recurvo ramisque glabris, calycis feminei tardiùs decidui laminis nudis, nucibus glabris latioribus quàm longis demum muticis.

Hab. In Africæ Australis planitiis elevatioribus arenosis, prope Promont. B. Spei. (v. s. in Herb. Hibbert.)

Obs. In Mare? squamulas quatuor longissimas hypogynas observavi.

*5. L. *sessile*, fruticosum, foliis lanceolato-oblongis glabris: basi obtusâ.

Hab. In Africâ Australi prope Promont. B. Spei. *D. Masson.* (v. s. in Herb. Banks.)

Obs. Squamulæ hypogynæ longissimæ, persistentes.

† † Nux *ventricosa v. lenticularis aptera, undique marginibusve pilosa.* Stylus *totus deciduus, basive solum remanenti.* Calyx *diù persistens quadripartitus.*

*6. L. *angustatum*, foliis lineari-spathulatis (passim angustatis) obtusis muticis concaviusculis ramisque glabris, strobili squamis conniventibus nucibusque pubescentibus subglobosis muticis, calycibus plumosis.

Hab. In Africâ Australi, prope Promont. B. Spei. *D. Masson.* (in Herb. D. Aiton. vidi.)

Desc. *Frutex*, ramis strictis, divisis. *Folia* sparsa, frequentia, erecta, 8—9 lineas longa, obtusissima, ad apicem (vix callosum) sesquilineam lata, in eodem ramo passim dimidio angustiora. *Strobilus* subglobosus, magnitudine globuli scloppi minoris: *Squamis* ovatis exterioribus latioribus. *Nux* magnitudine seminis Viciæ, levissimè compressa undique pube brevi induta, cincta calyce ad basin quadripartito vix longiore.

*7. L. *im-*

*7. L. *imbricatum*, foliis lanceolato-linearibus glabris imbricatis basi obtusis, squamis strobili dilatato-cuneatis retusis sericeis, nucibus undique comosis basi styli cuspidatis.

Protea Levisanus. *Herb. Linn.*

Hab. In Africâ Australi, prope Prom. B. Spei.; Rode Zant. (v. s. in Herb. Banks. et Soc. Linn.)

Obs. Squamæ nullæ hypogynæ.

*8. L. *buxifolium*, foliis ovali-lanceolatis subimbricatis: adultis glabris, squamis strobili dilatato-cuneatis sericeis, nucibus undique comosis basi styli mucronatis.

Protea imbricata. *Wend. Hort. Herenh. tab.* 14? excl. syn.

Hab. In Africâ Australi. *D. Masson.* (v. s. in Herb. Banks.)

Desc. *Frutex* erectus, ramosissimus. *Rami* umbellati, tenuissimè tomentosi. *Folia* frequentia, erecto-imbricata, sessilia, concaviuscula, avenia, opaca, semiunguicularia; superiora tenuissimè pubescentia; floralia angustiora. Masc. *Capitulum* sessile magnitudine pisi. *Calyx* tubo unguibusque sericeis, laminis glabriusculis. *Squamulæ* quatuor hypogynæ longæ, lineares. Fem. *Capitulum* paulo majus. *Calycis* ungues laminæque sericeæ. *Squamulæ* nullæ hypogynæ. *Nux* ovata, calyce diù cincta.

Obs. I. Nimìs affine *L. imbricato*, figurâ foliorum præsertim distinguendum.

Obs. II. Icon *Wend.* suprà citata forsan diversæ speciei; foliis oblongis semuncialibus pilosis, strobilis longioribus, squamulis hypogynis: an potiùs ad priorem referenda?

9. L. *Levisanus*, foliis obovato-spathulatis obtusissimis: adultis glabris, ramulis pilosis, capitulis masculis sessilibus, nucibus undique comosis muticis.

Levisanus

Levisanus capensis serpylli folio. *Petiv. Gazoph.* 9. *t.* 5. *f.* 7? mala.

Chrysanthemum Conyzoides Æthiopicum, capitulo aphyllo, Tithymali paralii foliis subrotundis, hiulculis in superficie conspicuis. *Pluk. Mant.* 47. *t.* 343. *f.* 9. bona.

Conocarpodendron; foliis subrotundis, brevissimis, capituli immaturi globosi parte inferiore fuscâ, mediâ aureâ, supremâ viridi. *Boerh. Lugd. Bat.* 2. *p.* 202. *c. tab.*

Brunia foliis oblongis incanis, florum capitulo ramulum terminante. *Burm. Afr.* 267.* *t.* 100. *f.* 2. Mas. bona.

Scolymocephalus seu Conocarpodendron, foliis brevissimis. *Weinm. Phyt.* 4. *p.* 296. *t.* 904. a. pessima quoad colores

Protea fusca. *Linn. Sp. Pl. ed.* 1. *p.* 95.

Brunia Levisanus. *Linn. Sp. Pl. ed.* 2. *p.* 289.

Leucadendron Levisanus. *Berg. Act. Stockh.* 1766. *p.* 324.* *Berg. Cap.* 20.* Mas.

Protea Levisanus. *Linn. Syst. Nat. ed.* xii. *t.* 2. *p.* 111. *Mant.* 194.* quoad descriptionem, sed specimen in Herbario est feminæ L. imbricati. *Thunb. Diss. n.* 43.* *Prod.* 27. *Willd. Sp. Pl.* 1. *p.* 526. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1223. *Poiret. Encyc. Botan.* 5. *p.* 644. *Wend. Hort. Herenh. t.* 1. Mas.

Hab. In Africæ Australis campis sabulosis ericetisque, prope Prom. B. Spei. (v. s. in Herb. Banks.)

Obs. Squamulæ nullæ hypogynæ.

10. L. *tortum*, foliis spathulato-linearibus obtusis basi tortis: adultis glabris; junioribus ramulisque subsericeis, capitulis masculis pedunculatis, calycis laminis sericeis, nucibus undique comosis muticis.

Protea torta. *Thunb. Diss. n.* 31.*? *Prod.* 26.? *Willd. Sp. Pl.* 1. *p.* 519?

Protea cinerea. *Willd. Sp. Pl.* 1. *p.* 521.* Fem. sec. disc. exclus. syn.

Hab. In Africæ Australis depressis, prope Prom. B. Spei. (v. s. in Herb. Banks. et Soc. Linn.)

11. L. *cinereum*, foliis spathulato-linearibus argenteis, capitulis masculis sessilibus, nucibus obovato-cuneatis villosiusculis muticis.

Protea alba. *Thunb. Diss. n.* 32.* sec. desc. *Prod.* 26. *Willd. Sp. Pl.* 1. *p.* 520. *Lam. Illust. Gen.* 1. *p.* 236. *n.* 1233. *Poiret. Encyc. Botan.* 5. *p.* 647.

Protea cinerea. *Hort. Kew.* 1. *p.* 127. Fem. fid. spec. descript. in Herb. Banks.

Hab. In Africâ Australi, prope Prom. B. Spei. (v. s. in Herb. Banks.)

Obs. Squamulæ quatuor hypogynæ in utroque sexu.

12. L. *corymbosum*, foliis lineari-subulatis imbricatis glabris, strobili squamis acutis apice recurvis, nucibus subcompressis obcordatis margine pilosis.

Leucadendron corymbosum. *Berg. Act. Stockh.* 1766. *p.* 325.* *Berg. Cap.* 21.* Mas

Protea corymbosa. *Thunb. Diss. n.* 28.* (desc. e mare præcipuè.) *tab.* 2. Mas. *Thunb. Prod.* 26. *Willd. Sp. Pl.* 1. *p.* 518. *Lam. Illust. Gen.* 1. *p.* 238. *n.* 1250. *Poiret. Encyc. Botan.* 5. *p.* 653.

Protea bruniades. *Linn. Suppl.* 117.* Mas. fid. spec. in illius Herb.

Protea corymbosa. *And. Repos.* 495. Fem.

Hab. In Africâ Australi, Drakenstein, Swartland, Rode Zant. (v. s. in Herb. Soc. Linn.)

Obs. Squamulæ quatuor hypogynæ in utroque sexu.

††† Samara *glabra alata v. aptera.* Stylo (*fere toto*) *calyceque deciduis.* Squamæ *strobili distinctæ.*

13. L. *decorum*, foliis oblongis venosis callo recurvo : adultis glabris ; junioribus ramisque sericeis ; floralibus coloratis semiscariosis, strobili squamis extùs tomentosis : apice retuso parùm coarctato glabro, nucibus marginatis impresso-punctatis.

Protea laureola. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1214. *Poiret. Encyc. Botan.* 5. *p.* 641.* Fem. exclus. syn. Linnei, Thunbergii, Schraderi.

Hab. In Africâ Australi, prope Prom. B. Spei. (v. s. in Herb. Banks.)

14. L. *squarrosum*, foliis lanceolato-oblongis : callo recurvo anticè sulco lineari ; adultis ramisque glaberrimis, amenti feminei oblongo-ovati squamis sursùm glabris dilatatis integris ciliatis : strobili recurvis undulatis.

Masc. Protea arcuata. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1215 ?

Protea obliqua *α. Poiret. Encyc. Botan.* 5. *p.* 642.* ? exclus. syn. Thunber. Linnei et Boerhaav.

Fem. Protea strobilina. *Linn. Mant.* 192.*

β. Conocarpodendron ; folio rigido, crasso, angusto, cono laricis parvo. *Boerh. Lugd. Bat.* 2. *p.* 197. *c. tab.* Fem. ?

Hab. In Africâ Australi, prope Prom. B. Spei. (v. s. in Herb. Soc. Linn.)

15. L. *concolor*, foliis spathulato-oblongis : callo anticè subrotundo ; adultis glabris ; floralibus masculis concoloribus, ramis pubescentibus, amenti feminei squamis retusis basi tomentosis, margine ciliatis.

Masc. Protea arcuata *β. Lam. Illust. Gen.* 1. *p.* 234. *n.* 1215?

Protea

Protea globosa. *And. Repos.* 307. bona. *Sims in Bot. Mag.* 878.

Protea obliqua β. *Poiret. Encyc. Botan.* 5. *p.* 642? exclus. syn. Boerh. Thunb. Linnei, Willd.

Fem. Protea strobilina. *Schrad. Sort. Hanov.* 1. *p.* 7. *t.* 1.

Hab. In Africâ Australi, prope Prom. B. Spei. (v. s. in Herb. Soc. Linn.)

16. L. *grandiflorum*, foliis lanceolato-oblongis: callo apicis anticè subrotundo; adultis glabris; floralibus coloratis, ramis tenuissimè tomentosis, squamis amenti utriusque sexûs ovatis obtusiusculis glabris fucatis.

Masc. Euryspermum grandiflorum. *Salisb. Parad.* 105.

Hab. In Africâ Australi, prope Prom. B. Spei. (v. s.)

*17. L. *ovale*, foliis oblongo-ovalibus subaveniis: callo obtuso; adultis utrinque glabris margine tomentosis, strobili squamis lanceolato-ovatis acutis glabris, samaris apteris impunctatis extùs ventricosis.

Protea strobilina. *Thunb. Diss. n.* 44.* secund. descrip.

Hab. In Africâ Australi. *D. Masson.* Palmetta River. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks.)

*18. L. *venosum*, foliis oblongo-lanceolatis venosis glabris: callo acuto, strobili squamis ovato-lanceolatis acutis ciliatis extra medium glabris, calycibus persistentibus, nucibus apteris.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

19. L. *decurrens*, foliis lanceolato-spathulatis basi attenuatis subdecurrentibus concaviusculis ramisque glabris, calycis femi-

 nei

nei tubo hirsuto, strobili squamis subrotundis demùm glabriusculis, samaris obcordatis alatis cinereis utrinque convexis.

Protea pallens. *Thunb. Diss. n.* 41.* secund. descrip. exclus. omnibus synonymis.

Protea chamelæa. *Lam. Illust. Gen.* 1. *p.* 237. *n.* 1240? exclus. syn. *Poiret. Encyc. Botan.* 5. *p.* 650*?

Hab. In Africâ Australi, prope Prom. B. Spei. (v. s. in Herb. Banks. et Soc. Linn.)

*20. L. *glabrum*, foliis lineari-lanceolatis aveniis: adultis ramisque glabris, strobili squamis obtusissimis subretusis tuboque calycis nudis, samaris alatis nigris planiusculis dilatatis.

Hab. In Africâ Australi, prope Prom. B. Spei. *Gul. Roxburgh M.D.* (v. s. in Herb. Soc. Linn.)

21. L. *strictum*, foliis linearibus mucrone subulato glabris, bracteis involucrantibus ovatis acutis capitulo florido longioribus, strobili squamis dilatatis rotundatis glabris, samaris apteris impresso-punctatis.

Masc. Euryspermum salicifolium. *Salisb. Parad.* 75. bona.
Protea conifera. *And. Repos.* 541.
Protea conica. *Lam. Illust. Gen.* 1. *p.* 237. *n.* 1237?
Protea conifera A. *Poiret. Encyc. Botan.* 5. *p.* 649?

Hab. In Africâ Australi, ad ripas fluviorum et in humidis inter saxa, prope Stellenboch et Rode Zant. *Gul. Roxburgh M.D.* (v. s. in Herb. Banks. et Soc. Linn.)

*22. L. *virgatum*, foliis linearibus acutis pellucido-marginatis ramisque glaberrimis: floralibus lineari-lanceolatis elongatis, strobili squamis ovatis integris incano-tomentosis, samaris alatis emarginatis.

Hab.

Hab. In Africâ Australi, prope Promont. B. Spei. (v. s. in Herb. Soc. Linn.)

Obs. Folia ramea basi torta; floralia intùs colorata rameis strobilisve duplo longiora; bracteæ involucrantes capitulo florido breviores. Strobilus ovatus magnitudine Avellanæ, squamis tomento vix nitente, superioribus apice sub-coarctatis.

*23. L. *adscendens*, foliis lineari-lanceolatis acutis: floralibus lanceolatis apice coarctatis coloratis concavis, strobili squamis ovatis integris incano-tomentosis, samaris alatis emarginatis, ramis adscendentibus, caulibus subdepressis.

Thymelæa capitata seu julifera angusto salicis folio promontorii Bonæ Spei. *Pluk. Mant.* 181. *t.* 229. *f.* 6. Mas. fide specim. in Herb. Pluk.

Conocarpodendron; folio angusto, rigido, breviore; cono parvo aureo, coronâ foliaceâ succincto. *Boerh. Lugd. Bat.* 2. *p.* 200. *c. tab.*?

Scolymocephalus minor. *Wein. Phyt.* 4. *p.* 295. *t.* 903. *a.*?

Protea pallens. *Linn. Mant.* 193.* Mas. fid. spec. in ejusd. Herb.

Protea conifera. *Linn. Mant.* 193.* Fem. fid. spec. in ejusd. Herb.

Hab. In Africæ Australis montibus, prope Promont. B. Spei. (v. s. in Herb. Banks.)

Obs. I. Strobilus ad basin tab. 9. Breyn. Cent. huc pertinet.

Obs. II. Protea pallens et conifera auctorum recentiorum ex eorum descriptionibus incompletis et ab altero solùm sexu desumptis vix extricandæ et æquo jure ad hanc speciem vel ad L. virgatum v. glabrum citari possint.

*24. L. *concinnum*, foliis lanceolato-oblongis obtusiusculis aveniis

ramisque

ramisque glaberrimis: floralibus subconformibus semicoloratis, strobili squamis ovatis integris argenteo-tomentosis, samaris alatis emarginatis.

Hab. In Africæ Australis montibus. *D. Niven.* (in Herb. Hibb. vidi.)

Desc. *Frutex* decempedalis (*Niven.*) *Rami* stricti, glaberrimi. *Folia* frequentia, erecta, subimbricata, uncialia, marginibus angustissimis, semipellucidis, scabriusculis, parùm concava, callo apicis obtusiusculo: *floralia* sesquiuncialia, strobilo maturo vix duplo longiora.

25. L. *salignum*, foliis lanceolato-linearibus acutissimè mucronatis subsericeis: floralibus lanceolatis coloratis, strobili squamis tomentosis sursùm dilatatis retuso-bilobis margine glabris, samaris apice latiusculò margine angustissimè alatis.

Conocarpodendron; folio tenui, angusto, saligno; cono calyculato, coronâ foliaceâ succincto. *Boerh. Lugd. Bat.* 2. *p.* 204. *c. tab.*

Protea foliis lineari-lanceolatis integerrimis acutis. *Hort. Cliff.* 29. secund. specim. in Herb. Cliff. quod ramulus absque fructificatione.

Protea foliis lineari-lanceolatis integerrimis superioribus hirsutis nitidis. *Roy. Lugd. Bat.* 184.

Protea argentea *β*. *Linn. Sp. Pl. ed.* i. *p.* 94. exclus. syn. Breynii et Tournefortii.

Protea conifera *α*. *Linn. Sp. Pl. ed.* ii. *p.* 138. excl. syn.

Protea saligna. *Linn. Mant.* 194. Mas. exclus. syn. Bergii et Breynii. *Lam. Illust. Gen.* 1. *p.* 236. *n.* 1235. *Poiret. Encyc. Botan.* 5. *p.* 648.* Fem.

Hab. In Africâ Australi, prope Promont. B. Spei, in montosis. (v. s. in Herb. Soc. Linn.)

26. L. *uli-*

26. L. *uliginosum*, foliis lanceolato-linearibus utrinque argenteis tomento arctè adpresso: callo apicis acuto, ramis tomentosis, calycis feminei tubo hirsuto, squamis strobili sericeis dilatatis subundulatis obsoletè retusis, samaris apteris.

Frutex æthiopicus conifer foliis cneori salici æmulis. *Breyn. Cent.* 21. *t.* 9. excepto strobilo ad basin tabulæ, qui ad L. adscendens pertinet.

Protea saligna. *Thunb. Diss. n.* 47.* secund. descrip.

Hab. In Africæ Australis uliginosis, prope Prom. B. Spei. (v. s.)

27. L. *floridum*, foliis lanceolato-linearibus sericeis suprà villosis: callo apicis acuto; floralibus subtùs ramisque hirsutis, calycibus masculis longitudinaliter pilosis, strobili squamis tomentosis apice dilatatis integris, samaris apteris.

Thymelæa capensis sericeis longioribus et acutis foliis caule geniculato-piloso. *Pluk. Phyt.* 181. *t.* 229. *f.* 4. fide specim. in ejus Herb.

Protea saligna mas et fem. *And. Rep.* 572?

Hab. In Africâ Australi, prope Promont. B. Spei, in paludosis ad radicem Montis Wynberg. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks. et Mus. Brit.)

†††† Squamæ *strobili connatæ*. Samara *foliaceo-compressa, glabra*. Folia *aliqua vel omnia filiformia*.

*28. L. *platyspermum*, foliis superioribus lineari-spathulatis: callo obtuso, strobili squamis duplicatis longitudinaliter accretis: rimis semicircularibus, samaris duplo latioribus quàm longis.

Hab. In Africâ Australi, prope Promont. B. Spei. Hout Hoek. *And. Auge.* (v. s. in Herb. Banks.)

Desc. *Frutex* glaber. *Folia* inferiora filiformia, canaliculata, sesquiuncialia; superiora plana, vix longiora.

Masc.

Masc. *Amentum* ovatum, bracteis lanceolatis, sericeis subtensum. *Laminæ* calycis glabræ. *Stigma* clavatum.

Fem. *Amentum* oblongum : *Squamis* glabris connatis. *Ungues* calycis villosæ. *Laminæ* glabræ. *Stigma* dilatatum, obliquum, papulosum. *Strobilus* oblongus, quandoque ovatus, rimis transversis semicirculum sub-æquantibus. *Samara* cinerea, lævis.

29. L. *comosum*, foliis superioribus spathulato-lanceolatis obtusis mucronatis rugoso-striatis, strobilis oblongis : squamis basi connatis suprà distinctis marginibus inflexis sub-barbatis, samaris subrotundis nigris.

Protea comosa. *Thunb. Diss. n.* 25.* secund. descript. folior. *Prod.* 26. *Willd. Sp. Pl.* 1. *p.* 517. *Lam. Illust. Gen.* 1. *p.* 238. *n.* 1254. *Poiret. Encyc. Botan.* 5. *p.* 655.

Hab. In Africâ Australi, pone Montes Swellendam. *D. Masson.* (v. s. in Herb. Banks. et D. Aiton.)

*30. L. *æmulum*, foliis superioribus lanceolato-spathulatis acutis rugoso-striatis, strobilis ovatis : squamis basi cohærentibus suprà distinctis marginibus recurvis imberbibus, samaris subrotundis nigris.

Protea incurva. *And. Repos.* 429. fortè Mas hujus speciei, quamvis folia superiora vix duplo latiora.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

31. L. *abietinum*, foliis omnibus filiformibus canaliculatis obtusiusculis lævibus patulis arcuato-incurvis, strobili squamis marginibus axibusque infrà connatis suprà distinctis bilobis.

Protea

Protea teretifolia. *And. Repos.* 461. femina et ramulus ad 4. mas.

Hab. In Africâ Australi, prope Prom. B. Spei, frequens. (v. s. in Herb. Banks. et Soc. Linn.)

*32. L. *scabrum*, foliis omnibus filiformibus canaliculatis acutis imbricatis rectiusculis margine scabris pilosisve, strobili squamis marginibus axibusque infrà connatis apicibus distinctis bilobis.

Hab. In Africâ Australi. (v. s. in Herb. Hibbert.)

††††† *Dubiæ tribus. Feminis adhucdum incognitis.*

33. L. *sericeum*, foliis lanceolatis sericeis semiunguicularibus, caule erecto, capitulis sessilibus solitariis aggregatisve turbinatis, calycibus masculis longitudinaliter pubescentibus: tubo gracili infernè stylo cohærente.

Protea sericea. *Linn. Suppl.* 118.* fide specim. in ejus Herb.

Protea sericea. *Thunb. Diss. n.* 46.* sed caulis erectus videtur.

Hab. In Africâ Australi, prope Promont. B. Spei. (v. s. in Herb. Banks.)

34. L. *Globularia* foliis lineari-spathulatis glabris aveniis: callo obtusissimo; basi attenuatâ tortâ, capitulis sessilibus depresso-globosis: bracteis tomentosis, calycibus masculis pubescentibus, stigmate clavato.

Protea globularia. *Lam. Illust. Gen.* 1. *p.* 236. *n.* 1232. *t.* 53. *f.* 2. *Poiret. Encyc. Botan.* 5. *p.* 647 ? exclus. syn. Thunbergii.

Desc. *Fruticulus* erectus ramosissimus, ramis strictis, ultimis sericeis. *Folia* sparsa, 8—9 lineas longa, inferiora ramorum breviora, capitulum subtendentia confertiora. *Brac-*

 teæ

teæ involucrantes capitulo dimidio breviores, ovatæ, arctè imbricatæ. *Calyx* tubo gracili unguibusque villosis, laminis glabris. *Ovarium* nullum. *Stylus* villosus. *Squamulæ* quatuor, lineares, longæ, basi styli infrà adnatæ.

*35. L. *pubescens*, foliis spathulato-linearibus obtusis obliquis: adultis pubescentibus; junioribus sericeis, ramis villosis, involucris capitulo globoso sessili brevioribus tomentosis, calycibus stylisque pubescentibus.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Obs. Quam maximè affine præcedenti.

*36. L. *ericifolium*, foliis acerosis glabris semiunguicularibus, capitulis corymbosis paucifloris, calycibus tomentosis.

Hab. In Africâ Australi. *Dom. J. Roxburgh.* (v. s. in Herb. Lambert. et Soc. Linn.)

Desc. *Frutex* erectus, ramosissimus, ramis rubicundis, ramulis tenuissimè tomentosis. *Folia* frequentia, erecta, imbricata, mutica, concaviuscula. *Capitula* breviter pedunculata, *Involucro* breviore sericeo subtensa. *Calyx* tubo gracili. *Ovarium* nullum. *Stylus* glaber. *Stigma* clavatum. *Squamulæ* nullæ intra calycem.

*37. L. *crassifolium*, foliis cuneato-obovatis obtusissimis glaberrimis crassis aveniis (3-uncialibus) basi attenuatis, capitulis globosis, bracteis propriis lanatis, calycibus glabris.

Hab. In Africâ Australi. *D. Masson.* (v. s. in Herb. Banks.)

Obs. *Rami* glaberrimi, glauci, crassitie digiti minimi. *Folia* frequentia, glauca, rigida, sesquiunciam lata, callo subrotundo, acutiusculo,

acutiusculo, marginibus subsimplicibus per lentem minutè crenulatis, novellis ciliatis. *Capitulum* magnitudine cerasi maximi. *Calycis Tubus* cylindraceus. *Laminæ* lineares, planiusculæ, unguesque recurvæ. *Stylus* glaber. *Stigma* oblongo-clavatum.

An hujus generis?

*38. L. *cartilagineum*, foliis ovali-spathulatis obtusissimis: callo subtruncato: aveniis cartilagineis glaberrimis; basi attenuatâ lineari, capitulis globosis subpedunculatis, bracteis calycibusque tomentosis.

Hab. In Africâ Australi. (v. s. in Herb. Soc. Linn. et D. Hibbert.)

Desc. *Frutex* erectus, ramulis tenuissimè tomentosis. *Folia* vix uncialia, siccatione venis obsoletis depressis. *Capitulum* magnitudine cerasi minoris, pedunculo brevissimo bracteisque villosis. *Calyx* quadrifidus. *Stylus* glaber. *Stigma* oblongo-clavatum.

An hujus generis?

3. PETROPHILA.

Atyli species. *Salisb. Parad.*

Gen. Char. *Calyx* quadrifidus, totus simul deciduus. *Stylus* basi persistenti. *Stigma* fusiforme, apice attenuato. *Squamulæ* nullæ hypogynæ. *Strobilus* ovatus. *Nux* lenticularis, hinc comosa, v. *Samara* basi barbata.

Habitus. Frutices *rigidi.* Folia *glabra, varia, filiformia v. plana, indivisa, lobata v. pinnatifida, quandoque in eodem frutice diversiformia.* Amenta *ovata v. oblonga, terminalia et axillaria, nunc aggregata.* Genus, posthac, speciebus increscentibus,

K 2 dividendum,

dividendum, phalangibus infra propositis genera futura indicantibus.

Etym. Πετρος et φιλεω. Hi frutices enim semper in saxosis apricis proveniunt.

Obs. Mr. Salisbury has united such of the New Holland Proteæ as he had seen, into one genus, which he calls *Atylus;* a name meant to express the want of those bodies that usually surround the ovarium, in this order, and which he chooses to term *calli:* but as I conceive they are certainly secreting organs, the name on this ground would be exceptionable: my chief reason however for not adopting it, either for the present or the following genus, is, that the whole of his essential character does not apply to either of them. In his secondary character, he has also considered them as monoicous, a mistake into which he has probably been led, not only from the striking similarity between the strobili of *Petrophila* and *Leucadendron,* but also from the style of the former remaining for some time unwithered after the calyx has fallen off. In one species he has even described the relative situation of the sexes; regarding the terminating amentum of *P. pulchella* as female, and the lesser ones, which frequently though not always surround it, as male; but that this is not the case is proved by Cavanilles' figure of the species, in which all the amenta are in fruit, and a specimen in the same state may be seen in Sir Joseph Banks's Herbarium.

† Stigma *articulatum, articulo inferiore angulato, glabro, superiore tomentoso.* Nux *lenticulari-compressa, intùs marginibusque comosa.* Folia *filiformia indivisa.*

*1. P. *teretifolia,* foliis teretibus exsulcis, squamis strobili enervibus, stigmatis articulo superiore stuposo triplo longiore.

Hab.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land. (ubi v. v.)

*2. P. *filifolia*, foliis teretibus exsulcis, squamis strobili nervosis orbiculatis, stigmatis articulo superiore barbato vix duplo longiore.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

*3. P. *acicularis*, foliis filiformibus suprà obsoletè sulcatis, squamis strobili nervosis ovatis.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in campis collibusque sterilibus. (ubi v. v.)

†† Stigma *inarticulatum, hispidiusculum.* Nux *lenticulari-compressa, intùs marginibusque comosa.* Strobilus *squamis distinctis.* Folia *filiformia bipinnatifida.*

*4. P. *rigida*, foliis triternatis: laciniis divaricatis, calycibus barbatis: laminarum apiculis glabris.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

5. P. *pulchella*, foliis trifido-bipinnatis: laciniis erectis, calycibus sericeis: laminarum apicibus tomentosis.

Protea pulchella. *Schrad. Sert. Hanov.* ii. *p.* 15.* *t.* 7. *Willd. Sp. Pl.* 1. *p.* 507. *Cavan. Anal.* 1. *p.* 237.* *Ic.* 6. *p.* 33. *t.* 550. *Sims, Bot. Mag.* 796.

Protea fucifolia. *Salisb. Prod.* 48.

Protea dichotoma. *Cavan. Anal.* 1. *p.* 239.* *Ic.* 6. *p.* 34.* *t.* 551.

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in arenosis inter saxa. (ubi v. v.)

*6. P. *fas-*

*6. P. *fastigiata*, foliis trifido-bipinnatis: laciniis erectis fastigiatis teretiusculis muticis, calycibus glabris, strobilis terminalibus sessilibus: squamis lanatis.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in ericetis aridis elevatioribus. (ubi v. v.)

*7. P. *pedunculata*, foliis tripinnatifidis: laciniis canaliculatis divaricato-patulis, calycibus glabriusculis, strobilis pedunculatis: squamis glabris.

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in montibus saxosis. (ubi v. v.)

††† Strobilus *squamis connatis.* Samara *foliacea, dilatata.* Stigma *inarticulatum, hispidiusculum.* Folia *plana, bipinnatifida.*

*8. P. *diversifolia*, foliis bi-tripinnatifidis planis: laciniis mucronatis, calycibus barbatis, strobilis axillaribus pedunculatis: squamis lanatis cohærentibus.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

†††† Strobilus *squamis distinctis.* Samara *planiuscula.* Folia *plana, ternatim divisa.*

*9. P. *squamata*, foliis trifidis: lobis lineari-lanceolatis; lateralibus sæpiùs bi--trifidis, strobilis axillaribus sessilibus: squamis apice scariosis glabris.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in ericetis collibusque aridis. (ubi v. v.)

*10. P. *trifida*, foliis trifidis: lobis spathulato-lanceolatis sæpissimè indivisis, strobilis axillaribus sessilibus: squamis apice sericeis.

Hab.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus apricis sterilibus. (ubi v. v.)

4. ISOPOGON.

Atyli species. *Salisb. Parad.*

Gen. Char. *Calyx* quadrifidus, tubo gracili, diutiùs persistente. *Stylus* totus deciduus. *Stigma* fusiforme, v. cylindraceum. *Squamæ* nullæ hypogynæ. *Nux* sessilis, ventricosa, undique comosa.

Habitus. Frutices *rigidi.* Folia *glabra, plana v. filiformia, divisa v. integerrima.* Capitula *terminalia, rarò axillaria.* Floribus *modò densissimè imbricatis strobilo globoso; modò fastigiatis receptaculo communi planiusculo subinvolucrato, paleis deciduis congestis.* Genus distinctum, præcedenti proximum, posthac forsan in duo dividendum, ratione inflorescentiæ secundum quam species infrà distributæ sunt, in duas phalanges habitu parùm diversas.

Etym. Ισος et πογον, ob nuces undique æqualiter barbatas; quâ notâ a *Petrophilâ* facilè distinguendus.

† Strobilus *globosus; squamis densissimè imbricatis, tardiùs deciduis.*

*1. I. *teretifolius*, foliis bi- v. triternatis filiformibus exsulcis, ramulis tomentosis, calycis tubo sericeo: laminis longitudinaliter barbatis.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in ericetis collibusque saxosis. (ubi v. v.)

2. I. *anethifolius*, foliis pinnatifidis bipinnatifidisque filiformibus suprà sulcatis: laciniis erectiusculis, ramis glabris, calycis tubo pubescente: laminis infrà glabris apice barbato.

Protea

Protea anethifolia. *Salisb. Prod.* 48.

Protea acufera. *Cavan. Anal.* 1. *p.* 236.* *Ic.* 6. *p.* 33. *t.* 549.

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in ericetis. (ubi v. v.)

*3. I. *formosus*, foliis bipinnatifidis subtriternatis filiformibus suprà canaliculatis: laciniis divaricatis, ramulis tomentosis, calycibus glabris: laminis apice pilosiusculis.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

4. I. *anemonifolius*, foliis trifido-pinnatifidis bipinnatifidisve: laciniis linearibus planis patenti-erectis subtùs lævibus, strobili squamis stuposis.

Protea anemonifolia. *Salisb. Prod.* 48. *Sims, Bot. Mag.* 697. *And. Repos.* 332.

Protea tridactylides. *Cavan. Anal.* 1. *p.* 235.* *Ic.* 6. *t.* 33.* *t.* 548.

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in ericetis saxosis. (ubi v. v.)

*5. I. *ceratophyllus*, foliis trifido-bipinnatifidis: laciniis linearibus planis divaricato-patulis utrinque striatis mucronatis; floralibus basi dilatatis, strobili squamis glabratis.

Hab. In Novæ Hollandiæ orâ australi, prope Port Phillip.; in campis et collibus. (ubi v. v.)

*6. I. *trilobus*, foliis cuneatis planis trilobis: basi attenuatis petiolatis; lobis integerrimis, ramulis tomentosis.

Hab.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in ericetis siccis. (ubi v. v.)

*7. I. *longifolius*, foliis lineari-lingulatis: superioribus integerrimis; inferioribus passim trifidis, calycibus sericeis, stigmate glabro.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

†† *Receptaculum commune planum v. convexiusculum, paleis deciduis.*

*8. I. *cuneatus*, foliis oblongo-cuneatis obtusissimis, involucri bracteis tomentosis, calycibus glabris, stigmate fusiformi.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land. *D. A. Menzies.* (v. s. in Herb. Banks.)

*9. I. *attenuatus*, foliis elongato-oblongis mucronulatis basi attenuatis, ramis bracteisque involucrantibus glabris, capitulis solitariis, calycis laminis apice barbatis, stigmate cylindraceo.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

*10. I. *polycephalus*, foliis lineari-oblongis mucronulatis, ramulis tomentosis, capitulis subaggregatis: bracteis omnibus lanatis, stigmate cylindraceo.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

*11. I. *buxifolius*, foliis ovatis sessilibus acutis: apicibus recurvis,

 caulibus

caulibus proliferis, capitulis solitariis foliis obvallatis; bracteis subulatis, stigmate fusiformi.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in ericetis elevatioribus subhumidis. (ubi v. v.)

*12. I. *axillaris,* foliis cuneato-lingulatis mucronulatis, capitulis axillaribus paucifoliis; bracteis involucrantibus ovatis imbricatis, calycis laminis longitudinaliter barbatis, stigmate fusiformi.

Hab. In Novæ Hollandiæ orâ australi, Lewin's Land; in collibus saxosis. (ubi v. v.)

5. PROTEA.

Linn. Gen. Pl. ed. i. *Class. Plant.* Leucadendron. *Linn. Gen. Pl. ed.* ii. v. *et* vi. Proteæ sp. *Linn. Syst. Veg.* xiii. *Thunb. Diss. Juss. Gen.* Erodendrum. *Salisb. Parad.*

Char. Gen. *Calyx* bipartibilis, inæqualis, labii latioris laminis staminiferis cohærentibus. *Stylus* subulatus. *Stigma* angustius, cylindraceum. *Nux* undique barbata, stylo persistenti caudata. *Receptaculum* commune, paleis abbreviatis persistentibus. *Involucrum* imbricatum, persistens.

Habitus. Frutices *modò proceriores et quandòque arborescentes, modò subacaules.* Folia *integerrima.* Capitula *terminalia, rariùsve lateralia:* Receptaculo *planiusculo, nunc convexo, sæpissimè glabro, paleis quandòque connatis alveolato:* Involucro *magno, colorato, turbinato v. hemisphærico:* Calycis *labio latiore sæpè 2—3-aristato.*

† *Capitula*

† *Capitula terminalia.*

1. P. *Cynaroides,* foliis subrotundis petiolatis, involucris sericeis; bracteis interioribus acutis imberbibus, stylo infra medium pubescenti.

Scolymocephalos Africana lato rotundo glabro folio, cono maximo sericeo candido. *Herm. Cat. Mt. Raj. Hist.* 3 *Dendr. p.* 9.

Cinaroides frutex folio subrotundo rigido e Monte Tabulari. *Petiv. Mus.* 374.

Lepidocarpodendron; folio subrotundo, rigido, in pedunculo longo, crasso; flore maximo, purpureo. *Boerh. Lugd. Bat.* 2. *p.* 184.* *c. tab.* bona.

Scolymocephalos africanus folio lato rotundo. *Weinm. Phyt.* 4. *p.* 287. *t.* 892.

Leucadendron foliis subrotundis patentissimis petiolatis, foliolis calycinis carinatis. *Wachen. Ultraj.* 204.

Leucadendron cinaroides *α. Linn. Sp. Pl. ed.* i. *p.* 92. *ed.* ii. *p.* 135. *Berg. Act. Stockh.* 1766. *p.* 319.

Protea cynaroides. *Linn. Mant. p.* 190.* *Syst. Veg.* xiii. *p.* 118. *Thunb. Diss. n.* 59.* (exclus. syn. Lepidocarpodendron, &c. Boerh. Lugd. Bat. 2. p. 199. c. tab.) *Thunb. Prod.* 28. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1209. *Willd. Sp. Pl.* 1. *p.* 534. *And. Repos.* 288. bona. *Poiret. Encyc. Botan.* 5. *p.* 639. *Sims, Bot. Mag.* 770.

Hab. In Africâ Australi, ad latera montium prope Promont. B. Spei. (v. v. in Hort. var.)

*2. P. *latifolia,* foliis late-ovatis semicordatis sessilibus, involucro sericeo-tomentoso; bracteis interioribus augustatis apice dilatato barbato, calyce tomentoso: aristis hirsutis longitudine laminarum, stylo pubescenti.

 Hab.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* in arenosis Zwartberg. *D. Niven.* (v. s. in Herb. Hibbert. et Lambert.)

Desc. *Frutex* 6—8 pedes altus. *Rami* tenuissimè tomentosi. *Folia* obtusissima, callo nullo prominulo, marginata, venosa, 3—4 uncias longa, 2—3 uncias lata, adulta glabra marginibus quandòque lanatis. *Involucrum* folia superiora superans, turbinatum, pugno majus: *Bracteis* obtusis, ciliatis; exterioribus latè ovatis; mediis oblongis; intimis elongatis, ungue lineari, laminâ oblongâ. *Calyx* ferè triuncialis, sericeo-tomentosus, labio latiore triaristato, aristis hirsutis, villis patulis terminalibus præsertim purpureis. *Stylus* angulato-compressus, pube brevi adpressa subsericeus, apice glabro, curvato. *Stigma* subulatum, apice obtusiusculo.

*3. P. *compacta*, foliis oblongo-ovatis cordatis marginatis: callo apicis prominulo, involucro sericeo-tomentoso ciliato imberbi, calycis aristis longitudine laminarum, stylo glabro apice curvato, stigmatis apice conico-incrassato.

Hab. In Africæ Australis montosis, Hout Hoek. *D. Masson.* (v. s. in Herb. Banks.)

4. P. *longiflora*, foliis ovato-oblongis sessilibus basi subcordatis simplicibusve, ramis tomentosis, involucro sericeo; bracteis intimis elongatis sericeo-ciliatis, calycis aristis brevissimis, stylo glabro involucro longiore.

Conocarpodendron; folio subrotundo, crasso, rigido, valdè nervoso; cono longo, variegato, ex rubro et flavo; flore aureo. *Boerh. Lugd. Bat.* 2. *p.* 199. *c. tab.* bona respectu capituli, foliis vix convenientibus et potiùs ad P. *compactam* v. *latifoliam* pertinentibus: strobilo nucibus et flosculo ad calcem tabulæ jamjam ad *Leucadendron retusum* relatis.

Scolymo-

Scolymocephalus foliis subrotundis glabris. *Weinm. Phyt.* 4. *p.* 294. *tab.* 902. b. a Boerh. icone mutuata omisso tamen strobilo.

Leucadendron, foliis subsessilibus cordato-ovatis imbricatis glabris. *Wachend. Ultraj.* 204. charactere ab icone Boerh. desumpto.

Protea longiflora. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1211. *Poiret. Encyc. Botan.* 5. *p.* 640.*

Protea lacticolor. *Salisb. Parad.* 27.

Protea ochroleuca. *Smith. Exot. Bot.* 2. *p.* 43. *t.* 81.

Hab. In Africæ Australis montibus, prope Prom. B. Spei. (v. v. in Hort. Reg. Kew.)

*5. P. *coccinea*, foliis obovatis obtusissimis sessilibus venosis ramisque glabris, involucri bracteis interioribus spathulatis apice barbatis, stylo glabro, calycis aristis ferè longitudine laminarum : margine pilosis ; apice imberbibus.

Hab. In Africæ Australis montibus, prope Promont. B. Spei, Devil's Head : solo fertiliori. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* 4—5 pedes altus. *Rami* crassitie digiti. *Folia* lævia, glauca, per lentem punctis minutissimis depressiusculis conspersa ; dum 4 uncias longa, 2—3 uncias lata ; superiora basi quandòque semicordata ; summa capitulum æquantia. *Involucrum* sessile, solitarium, turbinatum, 4—5-unciale, bracteis extùs demum glabriusculis ; interiorum barbâ marginali, copiosâ, longâ, persistenti. *Calyx* inclusus, 2½ uncias longus ; *Unguibus* hirsutis ; *Laminis* dorso glabris, margine pilosis ; *Aristis* vix longitudine laminarum. *Stylus* compressus. *Stigma* subulatum ; inde exsulcum à stylo absque manifestâ curvaturâ continuum.

6. P. *spe-*

6. P. *speciosa*, foliis obovato-oblongis basi angustatis ramisque glabris, involucri bracteis omnibus sericeis: interioribus apice subdilatatis mediisque barbatis, stylo pubescenti, aristis calycis apice lanatis.

Scolymocephalus Africana foliis longis glabris, cono sericeo; squamis rubigineâ villosâ cristâ ornatis. *Herm. Cat. Mt. Raj. Hist.* 3. *Dendr. p.* 9.

Lepidocarpodendron; folio oblongo, viridi, limbo rubro ornato; squamarum apice, et margine, lanuginosis. *Boerh. Lugd. Bat.* 2. *p.* 185. *c. tab.*

Scolymocephalus foliis longis, seu Tulipifer latifolius. *Weinm. Phyt.* 4. *p.* 288. *t.* 893. a. bona.

Scolymocephalus Africanus foliis angustis villosis. *Weinm. Phyt.* 4. *p.* 289. *t.* 894?

Bruckm. Epist. Itin. 2. *p.* 8. *t.* 3. capitulum.

Leucadendron speciosum. *Linn. Mant. p.* 36.* excl. syn. Clusii.

Protea speciosa. *Linn. Mant. p.* 191.

Protea Lepidocarpodendron β. *Linn. Syst. Veg.* xiii. *p.* 118.

Protea barbata. *Lam. Illust. Gen.* 1. *p.* 236. *n.* 1228.

Protea speciosa latifolia. *And. Repos.* 110. fortè huc pertinet monente D. Bellenden Ker; at pessima figura.

Protea speciosa. *Sims, Bot. Magaz.* 1183.

Hab. In Africæ Australis montibus, prope Prom. B. Spei. (v. v. in Monte Tabulari.)

*7. P. *macrophylla*, foliis elongato-oblongis marginatis venosis glabris basi subattenuatis, involucri bracteis omnibus tomentosis; intimis lingulatis imberbibus, calycis aristis hirsutis, stylo exsulco infra medium pubescente: apice curvato.

Hab.

Hab. In Africâ Australi, ad latera Montium Attaquas Kloof. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* validus, 8—10 pedes altus. (*Niven.*) *Rami* glabri apice tomento brevissimo quasi rore canescenti obducti. *Folia* basi parùm attenuatâ tortâ; superiora longiora, involucrum longè superantia, spithamea, ultra pollicem lata. *Involucrum* bracteis omnibus obtusis incanis; extimis ovatis; mediis oblongis; intimis apice haud dilatato. *Calyx* involucro parùm longior; unguibus laminisque tomento albo villisque concoloribus patulis: *Aristis* longitudine laminarum, tomento albo villisque longis, patulis, nigro-purpureis, terminalibus subcrispatis.

8. P. *formosa*, foliis angusto-oblongis venosis obliquis: basi simplici; marginibus ramisque tomentosis, involucri bracteis ciliatis; intimis lingulatis imberbibus, calycibus aristisque tomentosis, stylo glabro apice curvato, stigmate apice incrassato.

Protea coronata. *And. Repos.* 469.

Erodendrum formosum. *Salisb. Parad.* 76.

Hab. In Africâ Australi. *D. Masson.* (v. s. in Herb. D. Aiton, e Hort. Reg. Kew.)

Obs. Affinitate proxima *P. compactæ*, foliis præsertim diversa.

9. P. *melaleuca*, foliis lineari-lingulatis marginatis ciliatis, ramis pilosiusculis, involucris elongato-turbinatis: bracteis albo-ciliatis; exterioribus squarrosis; interioribus conniventibus spathulatis dorso nigro-tomentosis.

Lepidocarpodendron; folio saligno, viridi; nervo et margine flavo;

flavo ; cono longo, superiore parte maximè clauso. *Boerh. Lugd. Bat.* 2. *p.* 189.* *c. tab.* ?

Scolymocephalus seu Lepidocarpodendron frutice conifero. *Weinm. Phyt.* 4. *p.* 291. *t.* 898 ? diversa tamen bracteis intimis viridibus fortè e descriptione in Cod. Witsen. pictis.

Protea coronata. *Lam. Illust. Gen.* 1. *p.* 236. *n.* 1227 ? exclus. syn. priore Boerhaavii. *Poiret. Encyc. Botan.* 5. *p.* 645 ? desc. conveniente.

Protea speciosa nigra. *And. Repos.* 103.

Protea Lepidocarpon. *Ker in Bot. Mag.* 674.

Hab. In Africâ Australi, prope Prom. B. Spei.

Obs. Species, ex figuris recentioribus huc citatis, nec non e pulcherrimâ ineditâ D. Franc. Bauer, quæ omnes inter se exactè conveniunt, distincta videtur, at quoniam specimina his respondentia nondum vidi, haud sine hesitatione a sequente separavi.

10. P. *Lepidocarpon*, foliis lineari-lingulatis marginatis scabriusculis nitentibus ramisque glabris, involucri bracteis interioribus spathulatis dorso marginibusque nigro-barbatis, calycis aristis intùs pennatis, stylo pubescenti.

Scolymocephalus Africana, foliis longis glabris, cono variegato resinifero. *Herm. Cat. Mt.*

Scolymocephalus Africana, cono variegato resinifero. *Raj. Hist.* 3. *Dendr. p.* 9.

Lepidocarpodendron ; foliis angustis, longioribus, salignis ; calycis squamis elegantissimè ex flavo fusco albo nigro variegatis ; florum plumulis atro-purpureis. *Boerh. Lugd. Bat.* 2. *p.* 188. *c. tab.*

Scolymocephalus Africana, foliis longis, cono variegato. *Weinm. Phyt.* 4. *p.* 289. *t.* 895.

Protea

Protea foliis lanceolatis integerrimis glabris calycinis supernè villosis. *Roy. Lugd. Bat.* 186.

Leucadendron Lepidocarpodendron α. *Linn. Sp. Pl. ed.* i. *p.* 91. *ed.* ii. *p.* 134. *Berg. Act. Stockh.* 1766. *p.* 322.

Protea Lepidocarpodendron. *Linn. Mant.* 190.* desc. opt. nullo tamen specimine in Herb.

Protea Lepidocarpodendron α. *Linn. Syst. Veg.* xiii. *p.* 118.

Protea speciosa. *Thunb. Diss. n.* 53.* *Prod.* 27. *Willd. Sp. Pl.* 1. *p.* 531.

Protea cristata. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1226. *Poiret. Encyc. Botan.* 5. *p.* 644. exclus. syn. Roy. Linn. et Andr.

Protea grandiflora var. foliis undulatis. *And. Repos.* 301?

Hab. In Africæ Australis montibus, prope Prom. B. Spei. (v. v. in Monte Tabul.)

*11. P. *neriifolia*, foliis lineari-lingulatis lævibus opacis margine subsimplicibus basi extùs ramisque tomentosis, involucri bracteis interioribus apice parùm latioribus dorso argenteo-sericeo margine nigro-barbato, calycis aristis laminas superantibus intùs pennatis, stylo pubescenti.

Cardui generis elegantissimi cujusdam caput. *Clus. Exot.* 38.* *fig.* xv.

Hab. In Africâ Australi, ad radices montium prope Prom. B. Spei. (v. s. in Herb. Soc. Linn.)

Obs. I. Quam maximè affinis *P. Lepidocarpo*, at distincta videtur.

Obs. II. Synonymon Clusii huc retuli ob descriptionem optimè convenientem.

12. P. *pulchella*, foliis lineari-lingulatis marginatis nitentibus scabriusculis,

briusculis, ramis parùm tomentosis, involucri bracteis interioribus apice lanceolato-dilatato sericeo marginibus nigro barbatis, calycis aristis vix longitudine laminarum, stylo pubescenti.

Protea pulchella. *And. Repos.* 270. bona quoad capitulum, sed folia opaca margine ciliata.

Protea speciosa var. foliis glabris. *And. Repos.* 277. optima respectu capituli et foliorum nitore quæ autem margine concolori diversa.

Protea pulchella var. speciosa. *And. Repos.* 442. differt figura bractearum interiorum aristisque calycis laminâ longioribus.

Hab. In Africæ Aûstralis montibus, prope Stellenboch. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks. et Soc. Linn.)

13. P. *patens*, foliis angusto-oblongis subundulatis marginatis basi subattenuatis, ramisque villosis procumbentibus, involucro hemisphærico: bracteis sericeis; interiorum barba nigro-purpurea, stylo infrà pubescenti, calycis aristis longitudine laminarum.

Protea speciosa patens. *And. Repos.* 543.

Hab. In Africæ Australis montibus saxosis, prope Wilde River. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* procumbens. (*Niven.*) *Rami* tomentosi et villis patulis brevibus incani. *Folia* secunda, frequentia, obtusiuscula, venosa, 4—5 uncias longa, 7—9 lineas lata. *Involucrum* sessile, magnitudine pugni minoris: *Bracteis* obtusis, albo-sericeis, concaviusculis, interioribus nec dilatatis nec angustatis mediisque barbâ nigro-purpureâ instructis. *Calyx* sesquiuncialis albo-lanatus, aristis apice purpureis.

Stylus

Stylus basi compressâ tomentosâ suprà subulatus et infra medium pube rarâ, suprà glaber, apice curvato. *Stigma* acutiusculum.

*14. P. *incompta,* foliis lingulato-oblongis: summis ramisque hirsutis, involucri bracteis interioribus apice orbiculato-dilatato margine barbato, calycis lanati aristis longitudine laminarum, stylo glabro apice simplici.

Protea foliis lanceolatis integerrimis glabris calycem succingentibus hirsutis. *Roy. Lugd. Bat.* 186? exclus. syn. Boerh. *t.* 189.

Hab. In Africâ Australi. *Oldenburgh:* prope Wynberg. *Gul. Roxburgh M. D.* (v. s. sub eodem nomine in Herb. Banks.)

Desc. *Frutex* erectus. *Rami* hirsutissimi villis longis patulis. *Folia* frequentia, modicè patentia, 4 uncias longa, 1 unciam lata, venosa, basi obtusa, marginibus simplicibus; callo apicis acuto, recurvo; inferiora glabra; summa angustiora, capitulum paulò superantia. *Involucrum* turbinatum, 4 uncias longum, bracteis tomentosis; exterioribus mediisque oblongis, imberbibus; interioribus barbâ marginali, albâ. *Calyx* lanâ albâ, implexâ.

15. P. *longifolia,* foliis elongato-linearibus basi attenuata, involucri turbinati bracteis glabris acutis imberbibus, calycis aristis laminâ longioribus, stylo pubescenti apice curvato.

Lepidocarpodendron; foliis angustis, longis, salignis nervo rubro; florum plumis violaceo-purpureis. *Boerh. Lugd. Bat.* 2. *p.* 186.* *c. tab.*

Protea longifolia nigra. *And. Repos.* 132.

Protea longifolia var. cono turbinato. *And. Repos.* 144.

Protea longifolia ferruginoso-purpurea. *And. Repos.* 133.

Protea Lepidocarpodendron. *Herb. Linn.*

Hab. In Africâ Australi, prope Prom. B. Spei. *Oldenburgh.* (v. s. in Herb. Banks.)

16. P. *mellifera*, foliis lanceolato-lingulatis basi attenuatis, involucro turbinato: bracteis glabriusculis imberbibus viscidis, aristis calycis albo-lanatis longitudine laminarum, stylo glabro: apice simplici.

Scolymocephalus Africana, foliis longis acutioribus hirsutis, cono mellifero. *Herm. Cat. Mt.*

Conifera Alypi folio seminibus pennatis, pluribus in medio coni conglomeratis, et non inter squamas aliorum conorum more nascentibus! *Sloane in Philos. Trans.* 17. *p.* 666.* *c. tab.*

Scolymocephalus Africana, foliis angustis villosis, cono mellifero. *Raj. Hist.* 3. *Dendr. p.* 9.

Lepidocarpodendron; foliis angustis, brevioribus, salignis; calycis squamis elegantissimè ex roseo aureo albo atro-rubro variegatis; florum plumis albis. *Boerh. Lugd. Bat.* 2. *p.* 187. *c. tab.*

Scolymocephalus seu Lepidocarpodendron folio saligno. *Weinm. Phyt.* 4. *p.* 289. *t.* 896.

Protea caule multifloro calycibus oblongis foliis lanceolatis integerrimis. *Roy. Lugd. Bat.* 185.

Leucadendron repens α. *Linn. Sp. Pl. ed.* i. *p.* 91. *ed.* ii. *p.* 135.

Leucadendron repens. *Berg. Act. Stockh.* 1766. *p.* 322.

Protea repens. *Linn. Mant.* 189.* *Syst. Veg.* xiii. *p.* 118.

Protea mellifera. *Thunb. Diss. n.* 37.* *Prod.* 26. *Lam. Illust. Gen.* 1. *p.* 236. *n.* 1229. *Salisb. Prod.* 49. *Willd. Sp. Pl.* 1. *p.* 522. *Poiret. Encyc. Botan.* 5. *p.* 646. *Curt. Mag.* 346. *Wend. Hort. Herenh.* 13.

Hab. In Africæ Australis collibus et campis, prope Prom. B. Spei,

B. Spei, gregatim quandoque crescens. (v. v. prope Constantiam.)

17. P. *grandiflora*, foliis oblongis sessilibus ramisque glabris, involucro hemisphærico imberbi nudiusculo, calyce tomentoso; unguibus dorso glabriusculis; aristis brevissimis, stylo glabro.

Scolymocephalus foliis oblongis glabris crassioribus latioribus. *Herm. Cat. Mt.*

Lepidocarpodendron; folio saligno lato; caule purpurascente. *Boerh. Lugd. Bat.* 2. *p.* 183.* *c. tab.*

Scolymocephalos foliis oblongis. *Weinm. Phyt.* 4. *p.* 28. *t.* 891.

Protea foliis lanceolatis integerrimis flore patente glabro stylis longissimis. *Roy. Lugd. Bat.* 186.

Protea cinaroides β. *Linn. Sp. Pl. ed.* i. *p.* 92. *ed.* ii. *p.* 136.

Protea grandiflora. *Thunb. Diss. n.* 51.* *Prod.* 27. *Willd. Sp. Pl.* 1. *p.* 530. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1210? *Poiret. Encyc. Botan.* 5. *p.* 640?

β. Protea marginata. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1225.

Hab. In Africæ Australis collibus et montibus, frequens. (v. v. in Monte Tabulari.)

Obs. Variat involucro penitùs glabro bracteisque exterioribus albo-tomentosis. *Folia* quandoque lineari-oblonga et tunc ab icone *P. abyssinicæ* haud distinguenda.

18. P. *Abyssinica*, foliis lanceolato-lingulatis obtusiusculis basi subangustatâ, involucro hemisphærico: bracteis obtusis imberbibus, calyce tomentoso; aristis brevissimis, receptaculo villoso? caule arborescenti.

Gaguedi. *Bruce Abyss.* 5. *p.* 52. *c. tab. duab.*

Protea

Protea abyssinica. *Willd. Sp. Pl.* 1. *p.* 522.
Hab. In Abyssiniâ, Lamalmon. *Bruce l. c.*

19. P. *Scolymus*, foliis lineari-lanceolatis acutis submucronatis basi attenuatis, involucro hemisphærico; bracteis glabris obtusis, calycibus muticis, receptaculo villoso, caule ramoso multifloro.

Thymelæa capitata rapunculoides æthiopica saligneis foliis perianthio magno conformi squamoso. *Pluk. Mant.* 181. *t.* 440. *f.* 1. mala.

Scolymocephalus fruticis Æthiopici coniferi Breynii foliis; capite majore squamato. *Raj. Hist.* 3. *Dendr. p.* 10.

Lepidocarpodendron; acaulon; ramis numerosis e terrâ excrescens, calyce floris immaturo extùs ex rubro et flavo variegato intùs flavo. *Boerh. Lugd. Bat.* 2. *p.* 192. *c. tab.*

Scolymocephalus foliis angustis longis. *Weinm. Phyt.* 4. *p.* 288. *t.* 893. *f.* b.

Leucadendron Scolymocephalum. *Linn. Sp. Pl. ed.* i. *p.* 92. *ed.* ii. *p.* 135. *Berg. Act. Stockh.* 1766. *p.* 323.

Protea Scolymus. *Thunb. Diss. n.* 36.* *Prod.* 26. *Lam. Illust. Gen.* 1. *p.* 236. *n.* 1231. *Willd. Sp. Pl.* 1. *p.* 522. *Poiret. Encyc. Botan.* 5. *p.* 647. *And. Repos.* 409. *Wend. Sert. Hanov. t.* 20. *Sims, Bot. Mag.* 698.

Protea angustifolia. *Salisb. Prod.* 49.

Hab. In Africæ Australis ericetis elevatioribus, prope Prom. B. Spei. (v. v. in Hort. Angl.)

20. P. *mucronifolia*, foliis lanceolato-linearibus mucronatis pungentibus basi obtusa, bracteis involucri lanceolatis mucronatis glabris, caule erecto multifloro.

Protea

Protea mucronifolia. *Salisb. Parad.* 24. *Sims, Bot. Mag.* 933. *And. Repos.* 500.

Protea odoratissima. *Masson. in Herb. Ait.*

Hab. In Africâ Australi. *Masson.* In arenosis prope Berg. River. *Niven.* (v. v. in Hort. Hibbert.)

21. P. *nana,* foliis subulatis mucronatis, involucris nutantibus hemisphæricis; bracteis glabris obtusis.

Thymelæa æthiopica abietiformis floribus phœniceis. *Pluk. Mant.* 180.

Leucadendron nanum. *Berg. Act. Stockh.* 1766. *p.* 325.* *Berg. Cap.* 22.* exclus. syn. Petiv. ad feminam Aulacis pinifoliæ jam citato.

Protea rosacea. *Linn. Mant. p.* 189.* *Syst. Veg.* xiii. *p.* 118.

Protea nana. *Thunb. Diss. n.* 29.* *Prod.* 26. *Hort. Kew.* 3. *p.* 484. *Willd. Sp. Pl.* 1. *p.* 519.

Protea rosacea. *Lam. Illust. Gen.* 1. *p.* 238. *n.* 1251. *Poiret. Encyc. Botan.* 5. *p.* 653. *Smith, Exot. Bot.* 1. *p.* 85. *t.* 44.

Protea acuifolia. *Salisb. Parad.* 2.

Hab. In Africæ Australis montosis; prope Roode Zant Cascade. (v. s. in Herb. Linn. a Bergio.)

Obs. Nomen Cel. Bergii utpotè primum, nec ineptum et a Thunbergio, Dryandro et Willdenovio receptum, prætuli.

*22. P. *pendula,* foliis lineari-lanceolatis mucronulatis: terminalibus ramorum floriferorum recurvorum reclinatis, bracteis involucri obtusis demùm glabriusculis.

Hab. In Africâ Australi. *Masson.* (v. s. in Herb. Banks.)

Desc. *Frutex* erectus. *Rami* teretes, glabri; ultimi tenuissimè tomentosi: floriferi supra medium recurvi. *Folia* sparsa, passim

passim subopposita, frequentia, modicè patentia; extra medium parùm latiora, obtusa, mucronulo patenti, marginibus subrecurvis, glauca, compacta, adulta glaberrima, sesquiunciam longa. *Involucra* pendula, solitaria, hemisphærica, magnitudine Pruni: *Bracteis* arctè imbricatis, imberbibus exutâ pube tenuissimâ sericeâ demùm glabriusculis; interioribus sensim longioribus. *Calyces* inclusi, submutici, laminis barbatis. *Stylus* glaber, vix uncialis, apice simplici.

23. P. *tenax*, foliis lineari-lanceolatis planis: basi attenuatis; margine scabriusculis, ramis decumbentibus, involucro hemisphærico sericeo obtuso, calycis (uncialis) unguibus glabriusculis: aristis lanatis laminâ dimidio-brevioribus.

Erodendrum tenax. *Salisb. Parad.* 70.

Hab. In Africæ Australis depressis, Lange Kloof. *D. Niven.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* diffusus. *Rami* glabri v. hirsuti. *Folia* 4—6 uncias longa, 4—6 lineas lata, acuta, uninervia, venis obsoletis, minutè punctulata, scabriuscula; ramorum subsecunda. *Involucrum* bracteis concavis, tenuissimè ciliatis, exterioribus ovatis; interioribus oblongis. *Calyx* unguibus suprà pilosiusculis; laminis dorso nudiusculis. *Stylus* glaber, apice simplici.

24. P. *canaliculata*, foliis linearibus aveniis lævibus: suprà concaviusculis; ramisque glabris decumbentibus, involucro obtuso: bracteis interioribus subsericeis, calycis unguibus glabris: aristis penicillatis laminæ dimidio brevioribus.

Protea canaliculata. *And. Repos.* 437.

Hab. In Africæ Australis depressis arenosis, Lange Kloof. *D. Niven.* (v. s. in Herb. Lambert.)

Desc.

Desc. *Frutex* subdecumbens. (*Niven.*) *Folia* frequentia, 4—6 uncias longa, vix duas lineas lata, acuta. *Involucrum* magnitudine pruni, *Bracteis* concavis; exterioribus glabratis; interioribus brevissimè ciliatis. *Calyx* uncialis, unguibus laminisque glabris: Aristis albo-barbatis. *Stylus* glaber apice simplici.

25. P. *acaulis*, caulibus abbreviatis ramis depressis, foliis obovato-oblongis marginatis venosis basi attenuatis, involucris hemisphæricis inclinatis; bracteis obtusis glabris, calycibus muticis.

Scolymocephalus Africana foliis oblongis glabris humilis et procumbens. *Herm. Cat.* 19.

Scolymocephalus Africanus Lauri folio humilis et procumbens. *Raj. Hist.* 3. *Dendr. p.* 9.

Lepidocarpodendron; acaulon; foliis paucis, latis, nervo et marginibus rubris ornatis; fructu parvo. *Boerh. Lugd. Bat.* 2. *p.* 191.* *c. tab.*

Scolymocephalus s. Lepidocarpodendron acaulon. *Weinm. Phyt.* 4. *p.* 291. *t.* 898. b. bona.

Protea caule unifloro foliis lanceolatis. *Roy. Lugd. Bat.* 186.

Leucadendron acaulon. *Wachend. Ultraj.* 204. *Linn. Sp. Pl. ed.* i. *p.* 92. *ed.* ii. *p.* 135.* *Syst. Nat.* xii. *t.* 2. *p.* 110. omissa in Mant. et Syst. Veg. xiii.

Protea acaulis. *Thunb. Diss. n.* 49.* *Prod.* 27. *Willd. Sp. Pl.* 1. *p.* 529.

Protea nana. *Lam. Illust. Gen.* 1. *p.* 233. *n.* 1208. *Poiret. Encyc. Botan.* 5. *p.* 639.

Protea glaucophylla. *Salisb. Parad.* 11.

Hab. In Africæ Australis collibus, prope Promont. B. Spei. (v. v. juxta Simons Bay.)

 *26. P. *elon-*

*26. P. *elongata*, caulibus nanis, foliis elongato-lanceolatis (pedalibus) planis marginatis venosis lævibus; basi valdè attenuata lineari, involucro hemisphærico inclinato; bracteis glabris obtusis, calycibus brevissimè aristatis.

Hab. In Africæ Australis humidis elevatioribus. Roode Zant Cascade. *D. Niven.* (v. s. in Herb. Hibbert.)

Obs. Nimis affinis P. acauli.

*27. P. *angustata*, caulibus nanis, foliis lanceolato-linearibus planis, marginatis venosis lævibus, involucro hemisphærico inclinato: bracteis glabris obtusis, calycibus muticis: unguibus extùs glabris margine lanatis.

Hab. In Africæ Australis montosis solo fertiliori; Hout Hoek. *D. Niven.* (v. s. in Herb. Hibbert.)

Obs. An species distincta a *P. acaule?*

*28. P. *revoluta*, caulibus nanis, foliis canaliculato-semiteretibus lævibus, involucro hemisphærico inclinato: bracteis glabris obtusis, calycibus muticis: unguibus extùs glabris margine lanatis.

Hab. In Africæ Australis montibus aridis. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* humilis, basi divisus. *Rami* adscendentes, glabri, vix longitudine foliorum. *Folia* 6—9 uncias longa, acuta, impunctata, marginibus recurvis, simplicibus, canaliculata, infra medium teretiuscula parùmque attenuata. *Involucrum* brevissimè pedunculatum magnitudine pruni minoris. *Calycis* laminæ sericeæ. *Stylus* glaber, apice simplici.

*29. P. *tenuifolia*, caulibus nanis, foliis canaliculato-semiteretibus scabris,

scabris, involucro hemisphærico: bracteis tomentosis, calycis unguibus laminisque hirsutis: aristis brevissimis.

Hab. In Africæ Australis montibus sterilibus. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Folia* numerosa, punctis elevatis utrinque scabra, marginibus revolutis canaliculata, basi planiuscula, spithamea v. dodrantalia. *Involucrum* erectum, sessile, magnitudine pomi minoris, tomento ferrugineo tardiùs deciduo. *Calyx* sesquiuncialis laminarum villis brevioribus, aristis (mucronibus potiùs) duabus lamina quadruplo brevioribus. *Stylus* glaber, apice simplici.

*30. P. *lævis,* caulibus nanis decumbentibus, foliis elongato-linearibus lævibus aveniis marginibus recurvis, involucro hemisphærico: bracteis obtusis subsericeis, calycibus subuncialibus muticis.

Hab. In Africâ Australi. *D. Masson.* (v. s. in Herb. Banks.)

Desc. *Caulis* brevissimus, decumbens (*Masson.*) glaber. *Folia* secunda, glauca, spithamea, acuta, marginibus lævibus non incrassatis, basi attenuata plana. *Involucrum* sessile, erectum, magnitudine pomi minoris; *Bracteis* primùm subsericeis, demùm glabriusculis, marginibus brevissimè ciliatis. *Calyx unguibus* extùs glabriusculis, margine lanatis; *Laminis* villosis.

*31. P. *scabra,* caulibus nanis, foliis elongato-linearibus scabris obsoletè venosis, margine subrecurvis, involucro turbinato-hemisphærico: bracteis obtusis tomentosis, unguibus calycis hirsutis: aristis laminâ dimidio brevioribus.

Hab. In Africâ Australi, prope Promont. B. Spei. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Caulis* semisepultus, divisus, ramis adscendentibus, folio brevioribus. *Folia* conferta, erecta, spithamea, vix pedalia, 3—4 lineas lata, apice acuto sphacelato, uninervia, obsoletè venosa, utrinque tuberculis pustuliformibus scabra, aliisque minutissimis conspersa, basi attenuatâ petioliformi lævi. *Involucrum* sessile, erectum, magnitudine pomi minoris; *Bracteis* tomento ferrugineo demùm subdeciduo. *Calyx* vix semuncialis; laminis hirsutis; aristis villis flexuosis cinereis ferrugineisve.

Obs. In Herbario D. Hibbert plantam vidi Foliis planis elongato-lanceolatis; Involucris turbinatis; Calycibus albo-lanatis aristarum lana longiore magisque implexa; Stylo biunciali, vix arcuato: an distincta species?

32. P. *repens*, caulibus nanis, foliis elongato-linearibus scabriusculis margine revolutis, involucro turbinato: bracteis obtusis tomentosis: interioribus margine lanatis, calycibus biuncialibus; unguibus hirsutis; aristis laminâ brevioribus, stylo apice simplici.

Lepidocarpodendron; foliis longissimis, angustissimis, fructum elegantissimè ex rubro flavo et albo variegatum instar coronæ succingentibus; radice repente. *Boerh. Lugd. Bat.* 2. *p.* 190*. *c. tab.*

Scolymocephalus s. Lepidocarpodendron foliis longissimis. *Weinm. Phyt.* 4. *p.* 290. *t.* 897. a.

Protea caule unifloro calyce oblongo foliis linearibus longissimis. *Roy. Lugd. Bat.* 185.

Leucadendron, foliis longissimis obtusè trigonis longitudine florem superantibus. *Wachend. Ultraj.* 204.

Leucadendron repens β. *Linn. Sp. Pl. ed.* i. *p.* 92. *ed.* ii. *p.* 135.

Protea

Protea repens. *Thunb. Diss. n.* 38.* *Prod.* 26. *Lam. Illust.* 1. *p.* 236. *n.* 1230. *Willd. Sp. Pl.* 1. *p.* 523. *Poiret. Encyc. Botan.* 5. *p.* 646.

HAB. In Africæ Australis campis arenosis prope Prom. B. Spei. (v. s. in Herb. Banks.)

OBS. Varietas? foliis vix punctatis, sesquipedalibus.

*33. P. *lorea*, caulibus nanis, foliis teretibus elongatis lævibus, involucro turbinato sub-pedunculato: bracteis acutiusculis sericeis, calycis unguibus extùs glabris: aristis laminâ brevioribus, stylo apice curvato.

HAB. In Africâ Australi, prope Promont. B. Spei. *D. Masson.* (v. s. in Herb. Banks.)

DESC. Caulis brevissimus, semisepultus. *Folia* numerosa, pedalia, crassitie fili ligaterii. *Involucrum* pedunculo brevi squamis arctè imbricatis tecto: *Bracteis* exterioribus ovatis acutiusculis, interioribus oblongo-linearibus. *Calyx* Unguibus Laminisque extùs *Aristis* undique lana brevi densa alba crispata. *Stylus* glaber.

34. P. *turbiniflora*, caulibus nanis, foliis elongato-lanceolatis marginatis subundulatis lævibus, involucro subturbinato: bracteis tomentosis obtusis, calycis aristis longitudine laminarum: lana apicis longiore crispa.

Erodendrum turbiniflorum. *Salisb. Parad.* 108.

Protea cæspitosa. *And. Repos.* 526.

HAB. In Africæ Australis montibus; in humidis solo fertiliori. *D. Niven.* (v. s. in Herb. Hibbert.)

DESC. *Caules* cæspitosi, abbreviati, divisi, erecti. *Folia* uninervia, venosa, juniora villosa, adulta glabra, nitida, minutissimè punctata, acutissima, basi valdè attenuatâ petioliformi,

formi, spithamea, vix pedalia, unciam circiter lata; extima ramorum nana, biuncialia, basi vix attenuata, membranacea, subscariosa. *Involucrum* sessile, vix biunciale: *Bracteis* subincanis, ciliatis, interioribus apice lanatis. *Calyx* unguibus laminisque lanatis: *Aristis* curvatis, albo-lanatis, lanâ terminali fulvâ. *Stylus* glaber, apice levissimè curvato.

*35. P. *Scolopendrium*, caulibus nanis, foliis elongato-lanceolatis marginatis lævibus, involucro turbinato: bracteis lanceolatis acuminatis apice tomentosis, aristis calycis lamina dimidio brevioribus.

Hab. In Africâ Australi, Wintershoek. *D. Joh. Roxburgh.* (v. s. in Herb. Lambert.)

Desc. *Caulis* foliis aliquoties brevior. *Folia* pedalia, sesquiunciam vix duas uncias lata, costâ subtùs eminente, venis ramosis minutissimè punctata, basi valdè attenuata. *Involucra* subsessilia, solitaria v. bina, quandoque tres uncias longa: *Bracteis* interioribus apice tomento persistente cinereis. *Calyx* lanatus. *Stylus* glaber, infra medium dilatatus. *Ovarii* barba alba.

†† *Flores laterales.*

36. P. *cordata*, floribus lateralibus, foliis cordatis subrotundis nervosis, bracteis involucri glabris.

Protea cordata. *Thunb. Diss. n.* 60.* *tab.* 5. bona. *Prod.* 28. *Lam. Illust. Gen.* 1. *p.* 233. *n.* 1207. *Willd. Sp. Pl.* 1. *p.* 534. *Poiret. Encyc. Botan.* 5. *p.* 639. *And. Repos.* 289.

Protea cordifolia. *Sims, Bot. Mag.* 649.

Hab. In Africæ Australis montibus, Hottentots Holland et prope Fluvium Zonder End. *Thunb.* l. c. (v. s. in Herb. Banks.)

37. P. *am-*

37. P. *amplexicaulis*, floribus lateralibus, foliis cordatis ovatis amplexicaulibus divaricatis apice recurvis, bracteis involucri pubescentibus.

Erodendrum amplexicaule. *Salisb. Parad.* 67.

Protea repens. *And. Repos.* 453.

HAB. In Africâ Australi. *D. Masson.* (v. s. in Herb. Banks.)

38. P. *humilis*, floribus lateralibus, foliis linearibus acutis, (biuncialibus,) receptaculo conico: paleis acutis.

Protea humiflora. *And. Repos.* 532.

HAB. In Africâ Australi. *D. Masson.* (v. s. in Herb. Banks.)

DESC. *Caulis* nanus. *Rami* glabri. *Folia* plana, fere 3 uncias longa. *Involucra* hemisphærica, bracteis obtusis, interioribus apice pube adpressâ ferrugineâ.

*39. P. *acerosa*, floribus lateralibus, foliis subulatis, receptaculo convexiusculo: paleis obtusis.

HAB. In Africâ Australi. *D. Masson.* (v. s. in Herb. Banks.)

DESC. *Caulis* brevis. *Rami* erecti, glabri. *Folia* lævia. *Involucra* ramea, subaggregata, breviter pedunculata; *Bracteis* obtusis, interioribus pube diutiùs persistenti subsericeis. *Calyx* muticus, apice barbato. *Receptaculi* paleæ connatæ. *Squamulæ hypogynæ* subulatæ.

OBS. Varietas? Foliis longioribus (sesquiuncialibus) semiteretibus in Herbario et Hort. D. Hibbert vidi, quæ secundum *D. Niven.* 3—4 pedes alta in montosis solo fertiliori prope Zonder End. lecta. Hæc Protea virgata. *And. Repos.* 577.

6. LEUCOSPERMUM.

LEUCADENDRUM. *Salisb. Parad.* Proteæ sect. 3. *Linn. Mant.* CONOCARPODENDRA (spuria 196 et 198). *Boerh. Lugd.*

CHAR.

Char. Gen. *Calyx* irregularis, labiatus, unguibus tribus (rarò omnibus) cohærentibus, laminis staminiferis distinctis. *Stylus* filiformis, deciduus. *Stigma* incrassatum, glabrum (nunc inæquilaterale). *Nux* ventricosa, sessilis, lævis. *Capitulum* indefinitè multiflorum : *Involucro* polyphyllo imbricato.

Habitus. Frutices *sæpe humiles, quandoque arborescentes, plerique tomentosi v. hirsuti.* Folia *integra v. apice calloso-dentata.* Capitula *terminalia; Floribus flavis, modò imbricatis bracteis distinguentibus persistentibus induratis ; modò fastigiatis receptaculo planiusculo, paleis angustis, non mutatis, subdeciduis.*

† *Capitulum amentaceum ; Bracteis propriis persistentibus subinduratis.*

1. L. *lineare,* stylo calycem hirsutum superante, stigmate hinc gibboso, involucro tomentoso, foliis linearibus integris ; callo apicis subbarbato, ramis glabris.

Protea linearis. *Thunb. Diss. n.* 35.* *tab.* 4. pedunculo insolitè elongato stylisque apice nimis arcuatis. *Thunb. Prod.* 26. *Lam. Illust. Gen.* 1. *p.* 237. *n.* 1241. *Willd. Sp. Pl.* 1. *p.* 521. *Poiret. Encyc. Botan.* 5. *p.* 650.

Hab. In Africæ Australis arenosis. Paarl, Drakenstein, Stellenboch. (v. s. in Herb. Banks. Lambert. Soc. Linn.)

Obs. Folia sæpiùs canaliculata marginibus inflexis, nunquam reflexis, callo apicis villis albis diu tecto ; dum plana obsoletè striata marginibus scabriusculis ; rarissimè 2—3-dentata.

*2. L. *attenuatum,* stylo calycem hirsutum superante, stigmate subæquilaterali, foliis cuneato-linearibus tridentatis aveniis basi attenuata, involucris ramisque tomentosis.

Hab. In Africæ Australis arenosis elevatioribus inter saxa ; Zwellendam.

Zwellendam. *D. Niven.* (v. s. in Herb. Banks. Lambert. Hibbert.)

Desc. *Frutex* erectus, tripedalis. *Rami* stricti, crassitie pennæ anserinæ, incani. *Folia* glaberrima, lævia, basi uninervi vix tortâ, crassa, rarò 5-dentata, sesquiuncialia, biuncialia. *Capitula* solitaria v. gemina, breviter pedunculata, obovata, magnitudine pruni majoris. *Bracteæ involucri* ovatæ, acuminatæ, arctè imbricatæ; *pedunculi* patulæ. *Stylus* calyce unam quartam longior. *Stigma* conico-ovatum.

Obs. Hujus Varietas? insignis. Foliis latioribus, apice profundè tridentatis, dentibus lateralibus sæpissimè bi- intermedio tri-dentatis. Ramulis præter tomentum incanum villis patulis brevibus. (v. s. in Herb. Hibbert.)

3. L. *Tottum,* stylo calycem hirsutum ¼ superante, stigmate hinc gibboso, foliis lineari-oblongis sub-integris venosis basi obtusâ, bracteis involucri glabris ciliatis.

Protea Totta. *Linn. Mant.* 191.* fide spec. in illius Herb. *Thunb. Diss. n.* 54.* *Prod.* 27. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1224. *Willd. Sp. Pl.* 1. *p.* 532. *Poiret. Encyc. Botan.* 5. *p.* 644.

Hab. In Africæ Australis montosis; Roode Zant Cascade. (v. s. in Herb. Linn., Banks., &c.)

Obs. *Frutex* subdecumbens (secund. D. Niven.) *Rami* sæpiùs hirsuti, quandoque glabri. *Folia* interdum 2—3-dentata, venis obsoletis. *Calyces* bracteis triplo longiores. *Stigma* indivisum.

*4. L. *medium,* stylo calycem hirsutum ferè bis superante, stigmate hinc gibboso, foliis lineari-oblongis integris passimque 2—3-dentatis: callis acutis; basi obtusâ, bracteis involucri tenuissimè pubescentibus ciliatis, capitulis cernuis.

 Protea

Protea formosa. *And. Repos.* 17? quæ differt tamen, Foliis longioribus, Calycibus unilabiatis unguibus omnibus longitudinaliter cohærentibus, Bracteis involucri sphacelatis, Stigmate ovato-oblongo vix gibboso.

Hab. In Africæ Australis montibus. (v. s. in Herb. Soc. Linn.)

Obs. Species inter *L. Tottum* et *ellipticum* media, illo foliis, hoc floribus ferè exactè conveniens.

5. L. *ellipticum*, stylo calycem hirsutum ferè bis superante, stigmate conico-ovato hinc gibboso, foliis oblongis 3—4-dentatis; basi obtusis; biuncialibus: bracteis involucri tenuissimè pubescentibus ciliatis, capitulis erectis.

Protea elliptica. *Thunb. Diss. n.* 15.* *Prod.* 26. *Willd. Sp. Pl.* 1. *p.* 512.

Protea vestita. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1259?

Protea conocarpa A. *Poiret. Encyc. Botan.* 5. *p.* 657?

Hab. In Africæ Australis montibus. (v. s.)

Obs. Calli apicis foliorum obtusiusculi.

*6. L. *nutans*, stylo calycem supra sericeum bis superante, stigmate obliquo turbinato! involucri bracteis tomentosis incanis, capitulis nutantibus, foliis ovatis oblongisve 3—5-dentatis; basi obtusis.

α. Foliis subovatis cordatis vix sesquiuncialibus.

β. Foliis lineari-oblongis basi simplicibus, 2—3 uncias longis.

Hab. In Africæ Australis montibus. *Masson.* (v. s. α. in Herb. Banks., β. in Herb. Lambert.)

Obs. Distincta stigmate obliquo, apice depresso, axi longitudinali elevata.

Variat ramis tomentosis et hirsutis.

7. L. *Con-*

7. L. *Conocarpum,* stylo calycem villosissimum superante, stigmate subæquilaterali oblongo-conico, foliis ovalibus 3—9-dentatis, ramis bracteisque hirsutissimis.

Scolymocephalus africanus latifolius lanuginosus foliis in summitate crenatis. *Herm. Cat.* 20.

Leucadendro similis Africana arbor argentea folio summo crenaturis florida. *Plukn. Phyt. t.* 200. *f.* 2. folium, sed nux vix hujus generis.

Leucadendron, africana arbor argentea summo folio crenato. *Plukn. Alm.* 212.

Conophoros capitis Bonæ Spei, folio in summo dentato. *Raj. Hist.* 3. *App.* 240. *Petiv. Mus.* 172. fide spec. in Herb. Petiv.

Conocarpodendron; folio crasso, nervoso, lanuginoso, suprà crenato, ibique limbo rubro; flore aureo; cono facilè deciduo. *Boerh. Lugd. Bat.* 2. *p.* 196. *c. tab.* bona.

Scolymocephalus africanus folio crasso nervoso. *Weinm. Phyt.* 4. *p.* 292. *t.* 899. *f. b.*

Protea foliis oblongo-ovatis apice quinquedentato-callosis. *Roy. Lugd. Bat.* 184.

Leucadendron foliis ovatis obversis oblongis, margine calloso fimbriatis ad apicem crenatis. *Wachend. Ultraj.* 203.

Leucadendron Conocarpodendron. *Linn. Sp. Pl. ed.* i. *p.* 93. *ed.* ii. *p.* 136. *Syst. Nat.* xii. *t.* 2. *p.* 110. *Berg. Act. Stockh.* 1766. *p.* 321. Omiss. in Linn. Mant. et Syst. Veg. xiii.

Protea conocarpa. *Thunb. Diss. n.* 14.* desc. partim a L. grandifloro desumptâ. *Thunb. Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 512. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1260. *tab.* 53. *f.* 3. mala, præcipuè floribus separatis. *Poiret. Encyc. Botan.* 5. *p.* 656.

Hab. In Africæ Australis campis et collibus sterilibus, prope Promont. B. Spei. (v. v. ad littora Simon's Bay.)

 8. L. *gran-*

8. L. *grandiflorum*, stylo calycem villosissimum superante, stigmate æquilaterali oblongo-cylindraceo, foliis oblongo-lanceolatis tridentatis integrisque, ramis hirsutissimis, bracteis involucri glabris ciliatis.

Leucadendron grandiflorum. *Salisb. Parad.* 116.

Hab. In Africæ Australis montosis. (v. s. in Herb. Banks. sub nomine Proteæ villosiusculæ.)

9. L. *puberum*, stylo calycem hirsutum superante, stigmate æquilaterali ovato, foliis lanceolatis ellipticisve integris uncia brevioribus pubescentibus, ramis hirsutis, bracteis involucri incano-villosis ellipticis longè acuminatis.

Protea pubera. *Linn. Mant.* 192.* fide spec. in illius Herb. exclusis synonymis. *Thunb. Diss. n.* 56.* *Prod.* 27. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1216. *Willd. Sp. Pl.* 1. *p.* 533. excl. syn. Bergii. *Poiret. Encyc. Botan.* 5. *p.* 642.

Hab. In Africæ Australis summis montibus; Hottentot's Holland. (v. s. in Herb. Banks., Lambert.)

Obs. Variat foliis angusto-lanceolatis.

*10. L. *buxifolium*, stylo calycem hirsutum superante, stigmate æquilaterali ovato, foliis ovalibus obtusis integris unguicularibus pubescentibus, ramis hirsutis, bracteis involucri orbiculato-ovatis breviter acuminatis glabriusculis ciliatis.

Hab. In Africæ Australis montibus. *Masson.* (v. s. in Herb. Banks.)

Obs. Proximum priori et fortè cum eo a Thunbergio confusum.

*11. L. *patulum*, stylo calycem tomentoso-villosum superante,

stigmate

stigmate æquilaterali ovato, foliis spathulato-linearibus integris: adultis glabris, ramis divaricatis tomentosis, capitulis pedunculatis.

Hab. In Africâ Australi. *Masson.* (v. s. in. Herb. Banks.)

Desc. *Frutex* humilis, ramosissimus. *Folia* conferta, uncia breviora, basi angustata, callo apicis acutiusculo, summa tomentosa. *Capitula* magnitudine avellanæ; pedunculo tomentoso, bracteis lanceolatis; *Bracteæ* involucrantes ovatæ, acuminatæ, tomentosæ, incanæ. *Calyx* tubulosus, bilabiatus, tomentosus, villisque brevibus patulis suprà frequentioribus. *Stylus* 9 lineas longus. *Stigma* breve.

Obs. Valdè affinis *L. pubero.*

*12. L. *spathulatum*, stylo calycem villoso-tomentosum superante, stigmate æquilaterali, foliis spathulatis basi lineari: adultis glabris uncialibus, ramis hirsutis patulis, capitulis pedunculatis, bracteis tomentosis acuminatis.

Hab. In Africâ Australi. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* humilis, ramosissimus. *Rami* villis brevibus, patulis tomentoque cinereo instructi. *Folia* elliptico-spathulata, basi attenuata, lineari, tortâ: callo apicis obtuso; obsoletè venosa. *Capitulum* magnitudine juglandis minoris; *Bracteis* involucrantibus ovatis, acuminatis. *Calyces* villis brevibus, patulis densè tecti, laminarum decumbentibus, brevissimis. *Stylus* uncialis.

13. L. *tomentosum*, stylo sublongitudine calycis, caule erecto, foliis linearibus cuneatisve tridentatis tomentosis, bracteis lanceolatis tubum calycis subæquantibus.

Protea tomentosa. *Thunb. Diss. n.* 18.* *Prod.* 26. *Linn. Suppl.* 118.

118. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1257. *Willd. Sp. Pl.* 1. *p.* 514. *Poiret. Encyc. Botan.* 5. *p.* 656.

α. foliis linearibus canaliculatis aveniis, ramis bracteisque tomentosis, calycis laminis barbatis.

β. foliis lineari-cuneatis planis subvenosis 3—5-dentatis, ramis hirsutis, bracteis calycisque laminis tomentosis.

Protea candicans. *And. Repos.* 294.

γ. foliis linearibus planis ramis hirsutis, bracteis glabriusculis ciliatis.

Hab. In Africæ Australis montibus, prope Promont. B. Spei. (v. s in Herb. Banks., Lambert., et Soc. Linn.)

Obs. Plantæ pro varietatibus suprà habitæ fortè species distinctæ.

14. L. *Hypophyllum*, stylo longitudine calycis, caule procumbente, foliis linearibus tridentatis, bracteis orbiculato-ovatis tomentosis tubo calycis dimidio brevioribus.

Thymelæa capitata Rapunculoides Nerii crassioribus foliis summo apice tridentatis æthiopica coniformi calyce squamato. *Plukn. Mant.* 181. *t.* 440. *f.* 3.

Conophoros capensis folio angusto summo dentato. *Petiv. Mus.* 900. fide spec. in illius Herbar.

Scolymocephalos foliis angustis in summitate tridentatis. *Raj. Hist.* 3. *Dendr. p.* 9.

Conocarpodendron; folio rigido, angusto, apice tridentato rubro; flore aureo. *Boerh. Lugd. Bat.* 2. *p.* 198.* *c. tab.*

Scolymocephalus seu Conocarpodendron folio angusto. *Weinm. Phyt.* 4. *p.* 294. *t.* 902. *f. a.*

Protea foliis lanceolato-linearibus apice tridentato-callosis. *Linn. Hort. Cliff.* 29. Herb. Cliff. absque fructificatione.

Protea

Protea foliis lanceolatis linearibus apice tridentato callosis capitulis aphyllis. *Roy. Lugd. Bat.* 184. *Wachend. Ultraj.* 202.

Leucadendron Hypophyllocarpodendron. *Linn. Sp. Pl. ed.* 1. *p.* 93. *ed.* ii. *p.* 136. *Berg. Act. Stockh.* 1766. *p.* 321.* *Berg. Cap.* 16.*

Protea Hypophyllocarpodendron. *Linn. Mant.* 191.* desc. opt.

Protea Hypophylla. *Thunb. Diss. n.* 16.* *Prod.* 26. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1256. *Willd. Sp. Pl.* 1. *p.* 513. *Poiret. Encyc. Botan.* 5. *p.* 655.

Hab. In Africæ Australis sabulosis depressis prope Prom. B. Spei. (v. v. in collibus juxta Simon's Bay.)

Obs. Variat foliis glabris, pubescentibus et incano-tomentosis, 3—5-dentatis passimque integris, planis canaliculatisve, ramis nudiusculis, villosis v. tomentosis; Capitulis subsessilibus pedunculatisque; Bracteis latè ovatis, acutis orbiculatisve.

†† *Receptaculum planiusculum; Bracteis propriis angustis deciduis.*

*15. L. *molle*, foliis ellipticis acutis 2—3-dentatis integrisve subsericeo-pubescentibus mollibus, bracteis exterioribus glabriusculis, stigmate ovato.

Hab. In Africæ Australis montibus. (v. s.)

Obs. Proximum *L. crinito*, diversum figura foliorum et fortè caule procumbenti.

16. L. *crinitum*, foliis obovato-oblongis obtusis 3—5-dentatis integrisve; basi angustatis; pubescentibus demum glabris scabriusculis, bracteis omnibus villosis.

Protea crinita. *Thunb. Diss. n.* 13?* *Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 511? *Poiret. Encyc. Botan.* 5. *p.* 657.

Hab. In Africâ Australi. (v. s. in Herb. Soc. Linn.)

17. L. *ole-*

17. L. *oleæfolium*, foliis ovali-oblongis sublanceolatisve tridentatis et integris: adultis glabris, bracteis omnibus villosis, stigmate oblongo.

Leucadendron oleæfolium. *Berg. Act. Stockh.* 1766. *p.* 320.* *Berg. Cap.* 15.*

Protea criniflora. *Linn. Suppl.* 117.*

Hab. In Africâ Australi. (v. s. in Herb. Banks.)

Obs. Duplex varietas, altera foliis ovali-oblongis obtusis; bracteis exterioribus glabriusculis apice barbatis: altera foliis lineari-oblongis acutiusculis bracteis omnibus villosis. Ambæ à *L. crinito* diversæ foliis basi haud angustatâ.

18. L. *diffusum*, foliis cuneato-linearibus integris 2—3-dentatisve basi angustatis: adultis glabris, ramis procumbentibus, bracteis tomentosis lanceolatis acuminatis calyce dimidio brevioribus.

Protea heterophylla. *Thunb. Diss. n.* 19*? *Prod.* 26? *Willd. Sp. Pl.* 1. *p.* 515.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks. et Soc. Linn.)

Desc. *Frutex* prostratus? *Rami* longi, glabri v. hirsuti, quandoque adscendentes. *Folia* uncialia, plana v. marginibus leviter inflexis concaviuscula, obsoletè venosa, in ramis prostratis secunda. *Capitula* solitaria, breviter pedunculata, turbinata, magnitudine avellanæ; *Bracteæ* involucri incanæ, calyce hirsuto dimidio breviores. *Pistillum* calyce sesquilongius. *Stigma* clavatum *stylo* capillari parùm crassius.

Obs. Species affinis *L. patulo.*

7. MIMETES.

7. MIMETES.

Salisb. Parad. Hypophyllocarpodendron. *Boerh. Lugd.* Proteæ Sp. 9—10. *Linn. Mant.*

Char. Gen. *Calyx* quadripartitus, æqualis, laciniis distinctis. *Stylus* filiformis, deciduus. *Stigma* cylindraceum, gracile. *Nux* ventricosa, sessilis, lævis. *Receptaculum* commune planum, paleis angustis, deciduis. *Involucrum* indefinitè polyphyllum, imbricatum.

Habitus. Frutices. Folia *integra v. calloso-dentata.* Capitula *axillaria, in quibusdam folio superiori cucullato amplexa! quandoque terminalia.* Involucra *membranacea, rarò coriacea, nunc dimidiata!* Pistilla *calyce post expansionem flaccido longiora.* Stigma *sæpissimè acutum.*

† *Capitula axillaria.*

1. M. *hirta,* involucris æquilateralibus coloratis acuminatis semi-exsertis 8—10-floris, stigmate subulato, laminis calycis plumosis, foliis acutis integerrimis.

Scolymocephalus Africanus argenteus foliis Dorycnii Plateau. *Herman. Cat. Mt.*

Conophoros capensis foliis pilosis apice nigricante. *Petiv. Mus.* 62. fid. spec. in illius Herb.

Lepidocarpodendron; foliis sericeis, brevibus, confertissimè natis; fructu gracili, longo. *Boerh. Lugd. Bat.* 2. *p.* 194. *c. tab.*

Scolymocephalus africanus argenteus foliis Dorycnii. *Weinm. Phyt.* 4. *p.* 292. *t.* 899. bona.

Leucadendron hirtum. *Amœn. Acad.* 6. *p.* 83.* *Sp. Pl. ed.* ii. *p.* 136.

 Protea

Protea hirta. *Linn. Mant. p.* 188.* (Herb. Linn.) *Thunb. Diss. n.* 55.* exclus. syn. Boerh. Lugd. 2. p. 205. *Thunb. Prod.* 27. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1213. *Willd. Sp. Pl.* 1. *p.* 532. *Poiret. Encyc. Botan.* 5. *p.* 641.

Hab. In Africæ Australis campis collibusque, in locis humidis. (v. v. in collibus humidis prope Simon's Bay.)

*2. M. *capitulata*, involucris æquilateralibus coloratis acutis semi-exsertis pubescentibus 8—10-floris, stigmate apice conico-incrassato! laminis calycis plumosis, foliis acutis integerrimis.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks.)

Desc. *Frutex* erectus. *Rami* pubescentes. *Folia* elliptico-lanceolata, vix uncialia, pubescentia, haud sericea, ciliata, floralia parùm latiora; *Involucra* foliis paulò longiora; *Bracteis* ellipticis, acutis, rubris tenuissimè pubescentibus. *Calyces* involucro vix longiores. *Styli* calycibus ferè duplo longiores apice parùm incrassato tetragono subfusiformi. *Stigma* stylo nodulo articuliformi connexum, cylindraceum, sulcatum, apice duplo crassiore conico-capitato.

*3. M. *pauciflora*, involucris subæquilateralibus coloratis acutis villosiusculis subquadrifloris, calycibus pistilla æquantibus! laminis nudiusculis, stigmate cylindraceo, foliis obtusis integerrimis sericeis.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Lambert.)

Desc. *Frutex* erectus. *Rami* villosi, vestiti. *Folia* imbricata, frequentia, ovalia, plana, uncialia, venis altè immersis adversus

versus lucem tantummodò obviis. *Involucra* cylindracea, foliis sesquilongiora. *Bracteis* membranaceis, rubris, extimis obtusis ter brevioribus. *Calyx* involucro ferè unam quartam longior; *Unguibus* hirsutis; *Laminis* glabriusculis, pube brevi adpressâ. *Stylus* calycem vix superans, extra medium angulatus. *Stigma* cylindraceum, sub-emarginatum, crassitie styli, quo cum nodulo connexum.

4. M. *cucullata*, involucris inæquilateralibus subdimidiatis acuminatis glabriusculis, foliis lineari-oblongis tridentatis glabris: floralibus infrà dilatatis marginibus recurvis, stigmate subulato acutissimo.

Scolymocephalus africana, foliis angustis brevioribus, tribus in summitate denticulis, capitulis foliosis interceptis. *Herm. Afr.* 20.

Leucadendros africana s. Scolymocephalus angustiori folio apicibus tridentatis. *Plukn. Alm.* 212. *t.* 304. *f.* 6. bona.

Hypophyllocarpodendron foliis inferioribus apice trifido rubro superioribus penitùs rubris glabris. *Boerh. Lugd. Bat.* 2. *p.* 206. *c. tab.*

Scolymocephalus seu Hypophyllocarpodendron foliis tribus in summitate. *Weinm. Phyt.* 4. *p.* 297. *t.* 905.

Protea foliis lanceolatis obtusis foliis involventibus apice tridentato-callosis. *Roy. Lugd. Bat.* 184.

Leucadendron foliis cuneiformibus apice tridentato-callosis summis ultra florem protensis. *Wachend. Ultraj.* 203.

Leucadendron cucullatum. *Linn. Sp. Pl. ed.* i. *p.* 93. *ed.* ii. *p.* 136. *Berg. Act. Stockh.* 1766. p. 320.* *Berg. Cap.* 14.*

Protea cucullata. *Linn. Mant.* 189.* *Thunb. Diss. n.* 17.* *Prod.* 26. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1258. *Willd. Sp. Pl.* 1. *p.* 514. *Poiret. Encyc. Botan.* 5. *p.* 656.*

Hab. In Africæ Australis uliginosis prope Prom. B. Spei. (v. v. juxta Simon's Bay et Constantiam.)

Obs. *Frutex* 2—3 pedes altus. *Folia* vix sesquiuncialia, subavenia; floralia suprà glabriuscula. *Stigma* infra apicem non incrassatum. Varietas foliis unciâ brevioribus sublinearibus.

5. M. *Hartogii*, involucris inæquilateralibus subdimidiatis: bracteis acuminatis pubescentibus: interioribus tomentosis incanis, foliis lineari-oblongis tridentatis: adultis glabris marginibus niveo-lanatis; floralium apice angustato suprà sericeo, stigmate extra medium fusiformi: acumine setaceo.

Hypophyllocarpodendron; foliis lanuginosis, in apice trifido rubro quasi florescens. *Boerh. Lugd. Bat.* 2. *p.* 205. *c. tab.*

Scolymocephalus seu Hypophyllocarpodendron foliis lanuginosis. *Weinm. Phyt.* 4. *p.* 297. *t.* 906. a.

Protea cucullata β. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1258.

Hab. In Africæ Australis collibus, prope Prom. B. Spei. (v. v. in montibus juxta False Bay.)

Desc. *Arbuscula* orgyalis. *Rami* patentes, tomentosi. *Folia* frequentia, imbricata, plana, biuncialia et ultra, 8 lineas lata, subvenosa, utrinque tenuissimè pubescentia, pube demùm deciduâ, lanâ marginis persistenti; floralia dimidio inferiore dilatato, oblongo, marginibus reflexis cucullato, capitulum proximè inferius amplexante; superiore breviore, lineari, suprà sericeo, marginibus planis. *Calyx* sesquiuncialis, plumoso-barbatus. *Stylus* calycem superans, sulcato-angulatus. *Stigma* sulcato-quadrangulum sulcis striâ parùm elevatâ. *Receptaculum* paleis subulatis, lanatis.

*6. M. *Hibbertii*, involucris inæquilateralibus subdimidiatis: bracteis

bracteis obtusis: exterioribus glabris, foliis argenteis oblongo-ellipticis tridentatis integerrimisve.

Hab. In Africæ Australis alpinis humidis, prope Barbiers Kraal. *D. Niven.* (v. s. in Herb. Hibbert., Banks., Lambert.)

Desc. *Frutex* 5—6 pedes altus. *Rami* tomentosi, cinerei. *Folia* imbricata, sessilia, plana, obsoletè venosa, dum duas uncias longa, vix 8 lineas lata. *Involucra* foliis breviora, turbinato-ovata, 7—8-flora. *Bracteis* latè ovatis, exterioribus ciliatis, interioribus sericeis. *Calyx* villosissimus. *Stylus* calyce longior. *Stigma* filiforme, striatum, acutiusculum.

*7. M. *Massoni*, involucris æquilateralibus calyce dimidio brevioribus: bracteis subrotundis obtusis coriaceis foliisque argenteis ovatis integris.

Hab. In Africæ Australis montibus prope Franche Hock. *Masson.* (v. s. in Herb. Banks.)

Desc. *Frutex* erectus. *Rami* sericei. *Folia* imbricata, frequentia, plana, holosericea, obsoletè venosa, biuncialia, sesquiunciam lata, callo apicis nudiusculo. *Involucra* vix semuncialia, globosè ovata, circiter octo-flora; *Bracteis* fructiferis induratis. *Calyx* villis longis, sub-adpressis incanus. *Stylus* calyce longior. *Stigma* filiforme, acutum, striatum, vix crassitie styli. *Receptaculum* villosum, angustum, epaleatum.

†† *Capitula terminalia. Mimetes spuriæ.*

8. M. *thymelæoides*, caule erecto, foliis ovalibus obtusis pubescentibus semunciâ brevioribus, capitulis subaggregatis, stylis infra medium pubescentibus.

Leucadendron thymelæoides. *Berg. Act. Stockh.* 1766. *p.* 324.* *Berg. Cap.* 19.*

Hab.

Hab. In Africâ Australi, prope Promont. B. Spei. (v. s. in Herb. Banks.)

Desc. *Frutex* ramosissimus. *Rami* stricti, vestiti. *Folia* imbricata, vix unguicularia, subavenia, inferiora glabra. *Capitula* sessilia, globosa, magnitudine vix cerasi nigri. *Bracteæ* involucri lanceolato-ellipticæ. *Paleæ* undique densè lanatæ. *Calyx* sericeo-lanatus. *Stylus* calyce longior. *Stigma* acutiusculum.

9. M. *myrtifolia*, caule erecto, foliis lineari-oblongis obliquis integris v. 2—3-dentatis unciâ brevioribus, stylo glabro, capitulis sub-solitariis.

α. foliis tomentosis, passim 2—3-dentatis, bracteis acuminatis.

β. foliis glabriusculis, summis capitulo parùm longioribus, bracteis obtusiusculis.

Protea myrtifolia. *Thunb. Diss. n.* 50*? *Prod.* 27. *Willd. Sp. Pl.* 1. *p.* 530. *Poiret. Encyc. Botan.* 5. *p.* 641.

Hab. In Africâ Australi. (v. s. in Herb. Banks. et Soc. Linn.)

Desc. *α. Frutex* parvus. *Rami* brunnei, adulti glabri, juniores villosi. *Folia* avenia, tenuissimè pubescentia v. glabra. *Capitula* turbinata, sessilia, solitaria v. pauca aggregata, piso vix duplò majora, multiflora. *Bracteæ* involucri pubescentes, ciliatæ; exteriores ovato-lanceolatæ, acumine brevi; interiores oblongo-ellipticæ, obtusiusculæ. *Calyx* tetraphyllus, plumoso-villosus. *Pistillum* calyce longius. *Stigma* crassitie styli. *Squamulæ* hypogynæ subulatæ, persistentes. *Nux* elliptica, vix compressa, tenuissimè pubescens, basi styli terminata: cortex membranaceus, tenuis, albus, separabilis apice rugoso, putamen crustaceum, nigro-fuscum. *Nucleus* integumento simplici, tenuissimo. *Chalaza* apicis lata, venis radiantibus. *Receptaculum* planum, villosum, epaleatum.

10. M.

10. M. *divaricata*, caule procumbente, foliis ovalibus obtusis pubescentibus, stylo glabro.

α bracteis oblongo-linearibus obtusis semifoliaceis, laminis calycis sericeis.

Scolymocephalos africanus argenteus, foliis brevioribus, myrtiformibus, capitulis rarioribus. *Herm. Afr.* 20.

Leucadendron divaricatum. *Berg. Act. Stockh.* 1766. *p.* 324.* *Berg. Cap. p.* 19.*

Protea divaricata. *Linn. Mant.* 194.* *Thunb. Diss. n.* 57.* *Prod.* 27. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1221. *Poiret. Encyc. Botan.* 5. *p.* 643. *Willd. Sp. Pl.* 1. *p.* 533.

β. bracteis lanceolatis acutiusculis subscariosis.

HAB. In Africæ Australis campis et collibus, ubique prope Promont. B. Spei. (v. v. ad latera montium, juxta Simon's Bay.)

OBS. Calyx tetraphyllus. Receptaculum epaleatum.

11. M. *purpurea*, caule procumbenti, ramis adscendentibus, foliis lineari-subulatis canaliculatis, laminis calycis glabris.

Protea foliis linearibus simplicissimis ramis determinatis floribus terminatricibus. *Roy. Lugd. Bat.* 186.

Leucadendron proteoides. *Linn. Sp. Pl. ed.* i. *p.* 91.* (fid. spec. tunc in Herb.) *ed.* ii. *p.* 134.* *Berg. Act. Stockh.* 1766. *p.* 326.* *Berg. Cap.* 24.*

Protea purpurea. *Linn. Mant.* 195.* *Thunb. Diss. n.* 26.* *Prod.* 26. *Lam. Illust. Gen.* 1. *p.* 238. *n.* 1252. *Willd. Sp. Pl.* 1. *p.* 518. *Poiret. Encyc. Botan.* 5. *p.* 654.

HAB. In Africæ Australis collibus, prope Promont. B. Spei; frequens. (v. v. ad latera montium, prope Simon's Bay.)

OBS. I. Receptaculum epaleatum.

OBS. II. Variat Caule erectiusculo; Foliis undique versis et secundis;

secundis ; Bracteis acumine subulato, longo, brevissimo, vel nullo.

8. SERRURIA.

Salisb. Parad. Serraria. *Burm. Afr. Adans. Fam.*

Gen. Char. *Calyx* quadrifidus, subæqualis, unguibus distinctis. *Stigma* verticale, glabrum. *Squamulæ* quatuor hypogynæ. *Nux* brevissimè pedicellata, ventricosa. *Capitulum* indefinitè multiflorum ; *paleis* persistentibus, imbricatis.

Habitus. Frutices. Folia *filiformia, trifido-pinnatifida, raro indivisa.* Capitula *terminalia v. e summis alis, simplicia, nunc composita partialibus congestis v. pedunculo communi diviso corymbosa.* Involucrum *imbricatum, membranaceum, floribus sæpissimè brevius, in paucis longius, quandoque nullum.* Flores *semper sessiles, purpurei.* Pistillum *longitudine calycis.* Stigma *clavatum, rariusve cylindraceum.* Nux *ovalis, tenuiter pubescens, modò barbata, aliquando glabriuscula.*

Obs. Secundum Cl. Salisburium, "Flores interdum pedicellati," quod nunquam observare licuit.

† *Capitula simplicia ; Pedunculi indivisi v. nulli.*

*1. S. *glaberrima*, capitulis axillaribus pedunculatis, bracteis laminisque calycis glabris, foliis indivisis passimque trifidis, caule procumbente.

Hab. In Africæ Australis umbrosis montium. *Masson.* Kleine Hoot. Hoek. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn. et Banks.)

Desc. *Frutex* prostratus, glaber. *Rami* filiformes, subflexuosi. *Folia* alterna, remotiuscula, ramis parùm graciliora, 2—3 uncias longa. *Capitula*, erecta, sub-octoflora, pedunculo bracteato parùm breviora. *Bracteæ* propriæ subrotundæ, mucronatæ,

natæ, cucullatæ, glabræ, scariosæ. *Calyx* strictus, unguibus villosiusculis.

*2. S. *cygnea*, capitulis axillaribus terminalibusque pedunculatis, bracteis glabris subciliatis, calycibus curvatis sericeis, foliis bipinnatis, caule procumbente.

α. Capitula floribus viginti pluribusve : bracteis involucrantibus nullis.

β. Capitula floribus viginti paucioribus : bracteis involucrantibus nonnullis, lanceolato-ovatis.

Hab. In Africâ Australi prope Winterhoek et alibi. *Gul. Roxburgh, M. D.* (v. s. in Herb. Soc. Linn., β in Herb. Banks.)

Desc. *Frutex* procumbens, ramosus, glabriusculus. *Folia* sesquiunciam longa, quandoque biuncialia, superiora interdum breviora. *Pedunculi* capitulo longiores, bracteis distantibus, sæpiùs curvati. *Capitula* globosa, magnitudine cerasi ; *Bracteis* propriis latè ovatis, acuminatis. *Calyx unguibus* sigmoideo-curvatis ; *Laminis* nutantibus. *Stylus* pariter arcuatus. *Stigma* pendulum.

*3. S. *acrocarpa*, capitulis axillaribus pedunculatis, bracteis tomentosis, calycibus curvatis sericeis, nucibus basi pubescenti styli mucronatis, foliis bipinnatifidis, caule erecto.

Hab. In Africâ Australi, Brant-fly plain. *Gul. Roxburgh, M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* bipedalis et ultrà. *Ramuli* pubescentes. *Folia* biuncialia, adulta glabra. *Pedunculi* capitulo longiores, sæpè curvati, bracteis glabris distantibus, apice tenuissimè pubescentes. *Capitulum* magnitudine cerasi : *Bracteis* propriis ovato-subrotundis, breviter acuminatis, involucrantibus paucis similibus.

similibus. *Stylus* basi incrassatâ apice arcuato. *Stigma* pendulum. *Nux barbata* pilis strictis patulis.

*4. S. *elevata,* capitulis axillaribus pedunculo brevioribus, bracteis cuneato-orbiculatis tomentosis, calycibus breviter barbatis curvatis, nucibus submuticis, foliis bipinnatis unciâ longioribus, caule erecto.

Hab. In Africæ Australis arenosis. *Masson.* Picket Berg. *Gul. Roxburgh, M. D.* (v. s. in Herb. Banks., et Soc. Linn.)

Desc. *Frutex* orgyalis. *Rami* tomentosi, cinerei. *Folia* frequentia, pilosiuscula, viridia, inferiora glabra, sesquiuncialia, callis obtusiusculis. *Pedunculi* folia sæpissimè superantes, quandoque 3-unciales, tomentosi, cinerei, bracteis alternis, lanceolatis, patentibus. *Capitulum* magnitudine cerasi, floribus viginti pluribus, semunciâ brevioribus. *Bracteæ* omnes extùs sericeo-tomentosæ, brevissimè mucronatæ, intùs glabræ, intimæ submuticæ. *Nux* submutica, mucronulo vix manifesto, barbata.

Obs. Descriptio e plantâ Massoni: Roxburgianâ paulò diversa, *Calycibus* quandoque sericeis; *bracteis* mucrone longiore; *pedunculis* brevioribus, paucioribus; *foliis* recentioribus magis hirsutis: fortè species distincta.

*5. S. *Aitoni,* capitulis axillaribus subterminalibus pedunculo brevioribus, bracteis cuneato-subrotundis mucronatis glabriusculis, calycibus plumosis, nucibus mucronatis, foliis tripartito-bipinnatis sericeis unciâ brevioribus, caule erecto.

Hab. In Africâ Australi. *D. Masson.* (v. s. in Herb. D. Aiton.)

Desc. *Rami* stricti, pedales, tomentosi, vestiti. *Folia* erecta, frequentia, 8—10 lineas longa, subargentea tomento arctè adpresso,

adpresso, profundè trifida, laciniis bipinnatifidis, intermediâ parùm longiore magisque divisâ, lacinulis intùs sulco tenui, apiculis subrecurvis, callo obtusiusculo. *Pedunculi* e summis alis et terminales, corymbosi, unciales et ultrà, tomento brevissimo cinerei, bracteis alternis e basi erectâ lanceolatâ subulatis, recurvis. *Capitula* globosa, magnitudine ferè juglandis, floribus viginti pluribus. *Bracteæ* exteriores acumine longiore, interiores latiores, omnes glabriusculæ, subciliatæ. *Calyx* 7—8 lineas longus, unguibus laminisque plumoso-barbatis. *Stigma* clavatum, oblongum. *Nux* villis strictis sericeis barbata, basi styli mucronata. *Squamulæ* hypogynæ quatuor, subulatæ, persistentes.

*6. S. *simplicifolia*, capitulis terminalibus pedunculatis, bracteis villosis, calycibus barbatis, foliis indivisis rariúsve trifidis, caule erecto.

Hab. In Africæ Australis arenosis: Roode Zant Cascade. *Gul. Roxburgh, M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Fruticulus* pedalis, sesquipedalis, simplex v. subramosus, glaber, apicem versus tenuissimè pubescens. *Folia* uncialia sesquiuncialia, canaliculata, pleraque indivisa, aliqua passim trifida, juniora hirsuta ; radicalia elongata, crassiora, canali latiore. *Pedunculi* solitarii, capitulo longiores, incano-tomentosi ; *bracteis* glabriusculis, lanceolatis, distantibus. *Capitulum* magnitudine cerasi, floribus circiter viginti. *Bracteæ* subrotundæ, breviter acuminatæ, tomentosæ, subincanæ. *Calyx* densè plumosus, niveus. *Stigma* subcylindraceum.

*7. S. *diffusa*, capitulis terminalibus pedunculatis, bracteis lanceolato-ovatis acuminatis, calycibus barbatis, foliis trifidis

 v. pin-

v. pinnatifidis subindè simplicibus uncialibus ramisque glabris, caule procumbente.

Hab. In Africæ Australis arenosis saxosis; in elevatioribus propè Roode Zant. *Gul. Roxburgh, M. D.* prope Wilde River. *D. Niven.* (v. s. in Herb. Soc. Linn., et Hibbert.)

Desc. *Frutex* diffusus, pedalis bipedalis. *Folia* vix sesquiuncialia, dum pinnatifida laciniis quinque indivisis. *Pedunculi* solitarii, tomentosi, capitulo vix longiores; *bracteis* angustè lanceolatis, concavis, patulis, glabris. *Capitulum* magnitudine cerasi, floribus circiter viginti. *Bracteæ* lanceolato-ovatæ, acuminatæ, villosæ, scariosæ; extimæ angustiores, glabriusculæ. *Calyx* unguibus laminisque plumosis. *Stigma* clavato-cylindraceum.

8. S. *pinnata*, capitulis terminalibus axillaribusque pedunculatis subaggregatis, bracteis lanceolatis acuminatis villosis dimidio calyce longioribus, calycis unguibus subsericeis: laminis apice barbatis, foliis pinnatifidis trifidisve unciâ longioribus, caule procumbente piloso.

Protea pinnata. *And. Repos.* 512? sed folia nimis longa.

Hab. In Africæ Australis montibus aridis; in ascensu Paarl. Berg. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* totus prostratus, basi divisus, ramis pedalibus, pubescentibus. *Folia* secunda, erecta, subsesquiuncialia, sæpiùs pinnatifida, laciniis quinque, passim trifida, pilosiuscula, callis acutis. *Pedunculi* e summis alis et terminales, capitula subæquantes, adscendentes, tomentosi, bracteis alternis, ovato-lanceolatis, acuminatis, glabriusculis. *Capitula* globosa, magnitudine ferè juglandis, multiflora. *Calycis* laminæ infrà sericeæ, apice penicillatim barbatæ. *Stigma* erectiusculum, subclavatum, apice dilatato cavo.

*9. S. *are-*

*9. S. *arenaria*, capitulis terminalibus pedunculo longioribus, bracteis lanceolato-ovatis acuminatis villosis, calycis laminis tribus plumoso-barbatis quartâ subimberbi; unguibus nudiusculis, foliis trifidis pinnatifidisve unciâ brevioribus, caule pubescenti.

Hab. In Africæ Australis arenosis montium. Tygerhock Hill, Blue berg, &c. *Gul. Roxburgh M. D. & D. Niven.* (v. s. in Herb. Soc. Linn. et D. Hibbert.)

Desc. *Frutex* erectus v. decumbens, pedalis, parùm ramosus. *Folia* frequentia, laciniis indivisis, sæpè secunda. *Pedunculi* solitarii, capitulo dimidio breviores. *Ungues* calycis glabri v. pilis raris patentibus.

10. S. *cyanoides*, capitulis terminalibus pedunculo longioribus, bracteis orbiculato-ovatis acuminatis villosis, calycis laminis tribus longitudinaliter plumoso-barbatis quartâ nudiusculâ, foliis patulis: superioribus subbipinnatifidis vix uncialibus; inferioribus brevioribus trifidis, caule erectiusculo.

Cyanus æthiopicus rigidis capillaceis tenuissimis foliis trifidis ex Prom. B. Spei. *Plukn. Mant.* 61. *t.* 345. *f.* 6. fid. spec. in ejus Herb.

Protea foliis linearibus ramosis. *Roy. Lugd. Bat.* 186. *Wachend. Ultraj.* 202.

Leucadendron cyanoides. *Linn. Sp. Pl. ed.* i. *p.* 93. *ed.* ii. *p.* 137. *Berg. Act. Stockh.* 1766. *p.* 326. *Berg. Cap.* 27.*

Protea cyanoides. *Linn. Mant.* 188.* *Herb. Linn.*

Protea cyanoides. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1263. *Poiret. Encyc. Botan.* 5. *p.* 658. fortè diversa species.

Hab. In Africæ Australis collibus, prope Promont. B. Spei. (v. v. ad latera montium juxta Simon's Bay.)

Desc. *Frutex* humilis. *Ramuli* glabriusculi v. tenuissimè pubescentes.

bescentes. *Folia* vix uncialia, pilosiuscula, demùm glabra. *Pedunculi* solitarii, tomentosi, capituli sæpiùs dimidio breviores, nunc subæquantes, bracteis alternis. *Capitulum* magnitudine cerasi majoris, folia superiora superans, *Bracteæ* scariosæ, villis adpressis, acumine subulato breviore. *Stigma* clavato-cylindraceum.

*11. S. *furcellata*, capitulis terminalibus pedunculatis, bracteis lanceolatis: exterioribus pedunculique glabris; interioribus villosis, calycibus barbatis, foliis unciâ longioribus trifidis: laciniis 2—3-fidisve fastigiatis ramisque glabris, caule erecto.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s.)

Desc. *Rami* virgati. *Folia* alterna, sesquiuncialia, ad medium trifida, laciniis modicè patentibus, vix sulcatis, callo brevi acuto, lateralibus bifidis, intermediâ sæpiùs trifidâ. *Pedunculi* capitula subæquantes, bracteis lineari-lanceolatis, imbricatis, glabris, vestiti. *Capitulum* magnitudine cerasi nigri. *Stigma* cylindraceo-clavatum.

Obs. Valdè affinis sequenti.

*12. S. *scariosa*, capitulis terminalibus pedunculatis, bracteis lanceolatis glabriusculis calyces sericeos æquantibus apice patulis, pedunculis squarrosis, foliis bipinnatis laciniisque divaricatis ramisque glabris, caule erecto.

Protea sphærocephala. *Poiret. Encyc. Botan.* 5. *p.* 658.* secund. descript. synonyma autem omnia excludenda.

Hab. In Africâ Australi; in depressis, rariùs. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Rami* rubicundi, parùm flexuosi. *Folia* sesquiunciam longa, pinnarum lacinulis paucis, subfastigiatis, callo acuto; superiora modicè patentia. *Pedunculi* subumbellati, capitulo

tulo paulo longiores, pilosiusculi, bracteis lanceolatis, glabris, divaricatis. *Capitulum* globosè-ovatum, magnitudine cerasi minoris; *Bracteis* omnibus scariosis, glabriusculis, carinatis, apice acuto, patulo. *Calyx* villis arctè adpressis sericeus. *Stigma* subcylindraceum.

13. S. *pedunculata*, capitulis terminalibus pedunculatis, bracteis latè ovatis tomentosis, calycibus curvatis plumoso-barbatis: laminâ interiori villis adpressis sericeâ, foliis bi-tripinnatifidis cauleque erecto hirsutis.

Protea pedunculata. *Lam. Illust. Gen.* 1. *p.* 240. *n.* 1264.

Protea sphærocephala A. *Poiret. Encyc. Botan.* 5. *p.* 658.

Protea glomerata. *And. Repos.* 264. bona quoad faciem sed stigma nimis inclinans.

HAB. In Africæ Australis montosis; solo fertiliori; Roode Zant Cascade. *Gul. Roxburgh, M. D.* (v. s. in Herb. Banks., Lambert., Hibbert., et Soc. Linn.)

DESC. *Frutex* quandoque orgyalis. *Rami* stricti, pubescentes. *Folia* frequentia, sesquiunciam longa, pube decumbenti v. patulâ, annotino-interrupta. *Pedunculus* terminalis, dum plures aliqui axillares, capitulo sæpiùs longiores, rarò nulli, ramulis floriferis tunc foliis nanis instructis. *Capitulum* magnitudine ferè juglandis. *Calyx* densissimè barbatus, villis strictis, patulis. *Stigma* cylindraceo-clavatum.

*14. S. *scoparia*, capitulis terminalibus pedunculatis, bracteis latè-ovatis villosis, calycibus barbatis, foliis triternatis patulis unciâ brevioribus ramisque hirsutis, caule decumbente.

HAB. In Africæ Australis depressis arenosis et saxosis; inter

24 Rivers

24 Rivers et Fontainage Flat. *Gul. Roxburgh, M. D.* (v. s. in Herb. Soc. Linn. et D. Hibbert.)

Desc. *Rami* adscendentes, demùm glabriusculi. *Folia* 8—10 lineas longa, subdivaricata, ad medium trifida, laciniis subbipinnatis, lateralibus intermediam æquantibus. *Calycis* ungues hirsuti; laminæ densiùs barbatæ, interioris barbâ breviore. *Stigma* clavatum.

15. S. *hirsuta*, capitulis terminalibus pedunculo longioribus, bracteis lineari-lanceolatis hirsutis, calycibus plumoso-barbatis, foliis bipinnatis uncialibus, ramis hirsutis, caule erecto.

Protea phylicoides. *Thunb. Diss. n.* 9.* *Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 510. excluso synonymo Bergii.

Hab. In Africæ Australis collibus saxosis, propè Prom. B. Spei. (v. v. juxta Simon's Bay.)

Desc. *Frutex* 2—3 pedes altus. *Rami* umbellati, stricti, villis patulis, persistentibus, hirsuti. *Folia* frequentia, quandoque sesquiuncialia, modicè patentia, juniora hirsuta, adulta glabra, laciniis acutissimis. *Pedunculi* solitarii v. sæpè uno plures, capitulo dimidio breviores, bracteis lanceolato-subulatis, divaricatis. *Capitulum* magnitudine ferè juglandis, folia superiora superans. *Calyx* leviter arcuatus, barbâ laminæ interioris breviore. *Stigma* clavato-cylindraceum.

*16. S. *stilbe*, capitulis terminalibus subsessilibus ovatis, bracteis hirsutis ovatis acumine recurvo, calycibus barbatis, foliis 2—3-ternatis unciâ brevioribus, ramis pubescentibus, caule erecto.

α. folia

α. folia subbiternata, semunciâ breviora, imbricata, adulta glabra; bracteæ pilosiusculæ; nuces glabriusculæ.

β. folia biternata, ferè semuncialia, subimbricata ramique hirsuta; bracteæ nucesque barbatæ.

γ. folia subtriternata, semunciâ longiora, patula, ramulorum floriferorum nana; bracteæ nucesque hirsutæ.

Hab. In Africæ Australis montibus saxosis. *Masson.* et *Gul. Roxburgh M. D.* (v. s. α. in Herb. Banks. β. et γ. in Herb. Soc. Linn.)

Obs. Plantæ huc ut varietates propositæ, fortè species distinctæ.

*17. S. *Niveni*, capitulis terminalibus sessilibus, bracteis lanceolatis: extimis glabris; interioribus sericeis, calycibus barbatis, foliis bipinnatifidis subuncialibus: summis capitulum superantibus ramisque glaberrimis, caule decumbente.

Protea decumbens. *And. Repos.* 349.

Hab. In Africæ Australis montibus saxosis. Swartberg. *D. Niven.* (v. s. in. Herb. Hibbert.)

Desc. *Fruticulus* diffusus, spithameus, ramosissimus, *Rami* ramulique teretes, glaberrimi, rubicundi. *Folia* biternata et bipinnatifida, intùs canaliculata, mucronibus laciniarum acutissimis, semipellucidis, innocuis; modicè patentia; ramorum procumbentium secunda. *Capitula* solitaria, subsessilia, globosa, magnitudine cerasi nigri. *Bracteæ* extimæ breviter acuminatæ, extùs glaberrimæ, marginibus tenuissimè ciliatis, dimidio capitulo parùm longiores; reliquæ sericeæ, apicibus glabriusculis. *Calyx* densè barbatus, laminâ interiori villis adpressis sericeâ. *Stigma* cylindraceum, stylo vix crassius.

 18. S. *vil-*

18. S. *villosa,* capitulis terminalibus sessilibus, bracteis lanceolatis acuminatis tomentosis, calycis laminis barbatis: unguibus tomentosis, foliis subbiternatis: superioribus capitulum superantibus, ramis hirsutis, caule erecto.

Protea villosa. *Lam. Illust. Gen.* 1. *p.* 240. *n.* 1265.

Protea phylicoides. *Poiret. Encyc. Botan.* 5. *p.* 659.* exclusis synonymis Bergii et Thunbergii.

Hab. In Africâ Australi, prope Promont. B. Spei; in montibus prope Simon's Bay. *Gul. Roxburgh M. D.* in depressis prope Constantiam legi. (v. v.)

Desc. *Frutex* bipedalis et ultra. *Rami* umbellati, stricti, divisi, ultimi hirsuti. *Folia* vix uncialia, trifida; laciniis lateralibus bifidis trifidisve; intermediâ trifidâ, quandoque pinnatâ, mucronibus lacinularum acutissimis, subincurvis: modicè patentia, adulta glabra. *Capitula* solitaria, magnitudine cerasi. *Calycis ungues* tomento arctè adpresso; *Laminæ* penicillatim barbatæ. *Stigma* cylindraceo-clavatum.

*19. S. *fæniculacea,* capitulis terminalibus subsessilibus, bracteis glabris ovatis acuminatis, calycibus sericeis, foliis bipinnatis sesquiuncialibus: superioribus capitulum superantibus; ramisque glabris, caule erecto.

Hab. In Africæ Australis depressis, prope Constantiam, (ubi v. v.)

Desc. *Frutex* bipedalis, ramis umbellatis, rubicundis. *Folia* modicè patentia, laciniis gracili-filiformibus, acutissimis. *Capitula* solitaria, magnitudine cerasi; *pedunculo* brevissimo, bracteis imbricatis tecto, v. nullo. *Bracteæ* breviter ciliatæ. *Calyx* leviter arcuatus, unguibus laminisque argenteo-sericeis villis arctè adpressis. *Stigma* oblongo-clavatum.

Obs.

OBS. Facie, foliis, bracteis, calycibusque affinitatem quandam cum *S. glomeratâ* habet; sed capitulis semper solitariis distincta.

*20. S. *ciliata*, capitulis terminalibus pedunculo longioribus, bracteis subulatis glabris margine hirsutis dimidio capituli longioribus, calycibus sericeis, foliis subbipinnatis ramisque glabris, caule erecto.

HAB. In Africæ Australis depressis arenosis prope Physsers-Hoek, *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

DESC. *Frutex* ramosissimus. *Rami* rubicundi, ultimi tenuissimè pubescentes. *Folia* vix uncialia, modicè patentia, biternata v. subbipinnatifida; superiora capitulum vix æquantia. *Pedunculi* solitarii v. sæpè aggregati, bracteis subulatis squarrosi. *Capitula* turbinato-obovata, ceraso nigro minora. *Bracteæ* extùs glabriusculæ, punctis elevatis scabriusculæ. *Calyx* arcuatus. *Stigma* cylindraceo-clavatum.

*21. S. *congesta*, capitulis terminalibus sessilibus, bracteis subulatis margine hirsutissimis dimidio capituli longioribus, calycibus barbatis, foliis subbiternatis semuncialibus, ramis pilosiusculis, caule erecto.

HAB. In Africæ Australis arenosis, inter Roode Zant et Urbem Cap. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

DESC. *Frutex* ramosissimus. *Rami* sparsi, adulti glabri. *Folia* erecta, quandoque pinnatifida, laciniis indivisis. *Capitula* turbinata, vix magnitudine cerasi nigri, sæpiùs aggregata. *Bracteæ* extùs punctis elevatis, crebris, junioribus piliferis. *Calyx* densè barbatus, villis patulis, parallelis. *Stigma* cylindraceo-clavatum.

 *22. S. *ni-*

*22. S. *nitida*, capitulis terminalibus pedunculo squarroso duplo longioribus, bracteis capitulo parùm brevioribus: exterioribus subulatis glabris; interioribus villosissimis sericeis, calycis laminis plumoso-barbatis: interiori unguibusque nudiusculis, foliis unciâ longioribus.

Protea cyanoides. *Thunb. Diss. n.* 3.*? *Prod.* 25? *Willd. Sp. Pl.* 1. *p.* 507?

Hab. In Africæ Australis montibus. Hottentots-Holland-Kloof. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* glaberrimus, ramis rubicundis. *Folia* pinnatifida et subbipinnatifida, ferè sesquiuncialia. *Capitula* solitaria, globosa, magnitudine avellanæ. *Calyx* strictus, unguibus perangustis, pilosiusculis; lamina interiori apice barbâ brevi rarâ, reliquïs longitudinaliter barbatis, villis terminalibus dimidio laminæ longioribus. *Stigma* cylindraceum.

*23. S. *squarrosa*, capitulis terminalibus axillaribusque, pedunculis ramuliformibus squarrosis, bracteis dimidium capituli superantibus: exterioribus linearibus glabris; interioribus lineari-lanceolatis pilosis, calycis laminis penicillatim barbatis: interiori unguibusque nudiusculis, foliis subbiuncialibus.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Lambert.)

Desc. *Frutex* erectus, glaberrimus, ramosissimus, ramulis rubicundis. *Folia* bipinnatifida, patentia. *Pedunculi* capitulis parùm longiores; *bracteis* numerosis, divaricatis, inferioribus teretiusculis, foliaceis, superioribus longioribus, linearibus, confertissimis. *Bracteæ* interioris capituli pilis sparsis, patulis, hirsutæ. *Stigma* cylindraceum.

24. S. *phy-*

24. S. *phylicoides*, capitulis terminalibus axillaribusque, pedunculis ramuliformibus squarrosis, bracteis dimidium capituli superantibus: extimis lineari-subulatis; interioribus lanceolatis; utrisque glabris, calycis laminis penicillato-barbatis: interiori nudiusculâ; unguibus glabris, foliis sesquiuncialibus.

Leucadendron phylicoides. *Berg. Act. Stockh.* 1766. *p.* 328.* *Berg. Cap.* 29.* desc. opt.

Protea sphærocephala. *Linn. Mant.* 188.* (*Herb. Linn.*) exclus. syn. Bergii.

Protea abrotanifolia. *And. Repos. t.* 507.

Hab. In Africâ Australi. (v. s. in Herb. Linn. et Soc. Linn.)

Desc. *Frutex* erectus, glaberrimus, ramulis rubicundis. *Folia* bipinnatifida, passimque pinnatifida, modicè patentia, quandoque biuncialia. *Pedunculi* (si placeas ramuli floriferi) axillares et terminales, subcorymbosi, capitulis longiores, bracteis foliaceis, subulatis, indivisis, squarrosi. *Capitula* magnitudine avellanæ. *Bracteæ* extimæ punctis elevatis, interiores læves, marginibus nudis rariùsve ciliatis. *Calyx* strictus, unguibus glaberrimis, laminis exterioribus niveo-barbatis, villis terminalibus longitudine antherarum; interiori glabriusculâ. *Stigma* cylindraceum.

*25. S. *æmula*, bracteis capitulo terminali subsessili parùm brevioribus: exterioribus lanceolatis tomentosis ciliatis; interioribus minoribus villosis, calycis laminis omnibus plumoso-barbatis, foliis bipinnatifidis.

Hab. In Africæ Australis montibus prope Franche Hoek. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn. et D. Hibbert.)

Desc. *Frutex* 3—4 pedes altus. (*Niven.*) *Rami* ultimi tomento tenuissimo cinerascentes. *Folia* sesquiuncialia, modicè patentia,

tentia, glabra, laciniis acutissimis. *Pedunculi* capitulo breviores, quandoque brevissimi; *bracteis* subulatis, tomentosis, divaricatis, squarrosi. *Capitula* magnitudine avellanæ majoris. *Bracteæ* membranaceæ. *Calyx* strictus, unguibus nudiusculis. *Stigma* cylindraceum.

26. S. *florida*, bracteis capitulo pedunculato longioribus: exterioribus glabris oblongo-lanceolatis acuminatis; interioribus inclusis lineari-lanceolatis ciliatis, foliis pinnatifidis bipinnatifidisve.

Protea florida. *Thunb. Diss. n.* 2.* *tab.* 1. bona. *Lam. Illust. Gen.* 1. *p.* 240. *n.* 1271. *Willd. Sp. Pl.* 1. *p.* 506. *Poiret. Encyc. Botan.* 5. *p.* 662.

Hab. In Africæ Australis montibus propè Franche Hoek. *Masson.* (v. s. in Herb. Banks.)

†† *Capitula composita; partialibus congestis.*

*27. S. *decumbens*, caule prostrato foliisque glabris trifidis: laciniis indivisis, capitulis partialibus subquadrifloris.

Protea decumbens. *Thunb. Diss. n.* 1.* *tab.* 1. *Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 506. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1261. *Poiret. Encyc. Botan.* 5. *p.* 657.

Protea procumbens. *Linn. Suppl.* 116*.

Hab. In Africæ Australis lateribus saxosis montium, prope Promont. B. Spei. (v. v. juxta Simon's Bay.)

Desc. *Frutex* prostratus, glaber, basi divisus. *Rami* elongati, rubicundi, parùm flexuosi, sæpè annotino-articulati. *Folia* alterna, erecta, secunda, biuncialia, infra medium trifida, laciniis subæqualibus. *Pedunculi* terminales et sæpè e summis alis, adscendentes, graciles; bracteis nonnullis, parvis, glabris. *Capitulum* commune subconicum, magnitudine ferè juglandis,

juglandis, e quatuor ad sex partialibus imbricatis, breviter pedunculatis, 3—4-floris, quandoque abortione simplex. *Bracteæ* capitulorum partialium orbiculato-ovatæ, acumine brevi, subsericeæ, passimque glabriusculæ. *Calyx* levissimè arcuatus, subsericeus, villis arctè adpressis. *Stigma* cylindraceum.

28. S. *adscendens*, caule procumbente foliisque glabris pinnatifidis bipinnatifidisque, pedunculis partialibus incano-tomentosis, calycibus curvatis.

Protea ascendens. *Lam. Illust. Gen.* 1. *p.* 239. *n.* 1262. *Poiret. Encyc. Botan.* 5. *p.* 658*?

Hab. In Africæ Australis montibus. Kleine-Hoot-Hoek. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* glaber. *Rami* rubicundi, quandoque adscendentes. *Folia* sæpiùs bipinnatifida, passim pinnatifida, sesquiuncialia, biuncialia. *Pedunculi* communes terminales et interdum e summis alis, capituli dimidio breviores. *Capitulum* obtusè conicum, magnitudine ferè juglandis, compositum partialibus quinque ad septem, imbricatis, breviter pedunculatis, 6—7-floris. *Bracteæ* ovato-lanceolatæ, acumine patulo, glabræ, basi tomentosâ subincanâ. *Calyx* villis adpressis, argenteis, sericeus. *Stigma* subcylindraceum.

*29 S. *flagellaris*, caule procumbente foliisque pilosis bipinnatifidis, pedunculis partialibus subtomentosis, calycibus strictis.

Hab. In Africæ Australis campis arenosis lateribusque montium; prope Simon's Bay, (ubi v. v.)

Desc. *Frutex* prostratus, basi divisus. *Rami* elongati, apice adscendentes, adulti glabriusculi. *Folia* erecta, secunda, circiter biuncialia, laciniis patentibus, fastigiatis, hirsutis, pilis

pilis patulis, tardiùs deciduis. *Pedunculi* communes terminales; bracteis alternis, subulatis, vix longitudine capituli; quandoque recurvi. *Capitulum* magnitudine juglandis, e partialibus 5—8, racemoso-congestis, 8—10-floris. *Pedunculi* partiales capitulis suis breviores, tomento rariore cinerascentes. *Bracteæ* ovatæ, acuminatæ, pube rarâ appressâ conspersæ, ciliatæ. *Calyx* sericeus, villis adpressis imbricatis. *Stigma* subcylindraceum.

30. S. *rubricaulis*, caule erecto foliisque glabriusculis subbipinnatifidis uncialibus, capitulis partialibus paucifloris, bracteis ovatis acuminatis glabris, pedunculis partialibus pilosiusculis, stigmate cylindraceo.

Protea sphærocephala. *Thunb. Diss. n.* 5*? exclus. syn. omn.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s.)

Desc. *Rami* stricti, rubicundi, glabri, pilisve paucis patulis. *Folia* biternata et subbipinnatifida, erecta, vix sesquiuncialia. *Pedunculus* communis terminalis, capitulo brevior, glaber, bracteis alternis; partiales capitulis suis dimidio breviores, pilosi, quandoque glabriusculi. *Bracteæ* ovatæ, acumine recurvo, glabræ, ciliatæ, scariosæ. *Calyx* sericeus, villis adpressis.

Obs. Valdè affinis S. adscendenti.

31. S. *glomerata*, caule erecto foliisque glabris bipinnatifidis unciâ longioribus, capitulis partialibus multifloris, bracteis exterioribus glabris; interioribus subsericeis, pedunculo communi squarroso, stigmate clavato.

Serraria foliis tenuissimè divisis capitulis tomentosis. *Burm. Afr. p.* 265. *t.* 99. *f.* 2. mala.

Leucadendron Serraria. *β. Linn. Sp. Pl. ed.* i. *p.* 94.

Leucadendron

Leucadendron glomeratum. *Linn. Sp. Pl. ed.* ii. *p.* 137. (omissum in Syst. Nat. ed. xii.) *Berg. Act. Stockh.* 1766. *p.* 328.

Protea glomerata. *Linn. Mant.* 187.* *Herb. Linn.*

Protea patula. *Thunb. Diss. n.* 4.* ?

Hab. In Africæ Australis collibus saxosis, prope Promont. B. Spei. (v. s. in Herb. Linn., Banks., Soc. Linn.)

Desc. *Frutex* ramis rubicundis. *Folia* modicè patentia, quandoque biuncialia, glaberrima. *Pedunculi communes* sæpè aggregati, bracteis patulis, latè-ovatis, acuminatis, glabris squarrosi, capitula subæquantes; *partiales* capitulis suis breviores; utrique pubescentes. *Capitula* partialia magnitudine pisi majoris, bracteis densissimè imbricatis, subrotundis, acuminatis. *Calyx* sericeus, villis adpressis.

32. S. *decipiens*, caule erecto ramulis pubescentibus, foliis bipinnatifidis uncialibus et ultra, capitulis partialibus paucifloris communique breviter pedunculatis, bracteis omnibus villosissimis, calycibus sericeis.

α. Frutex 4—5-pedalis, foliis sesquiuncialibus biuncialibusque.

β. Frutex 1—2-pedalis, foliis uncialibus, bractearum acumine glabro.

Hab. In Africæ Australis planitiis elevatioribus arenosis. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* ramosissimus, ramis tenuissimè pubescentibus. *Folia* patentia, superiora capitula superantia. *Capitula communia* sæpè aggregata; *partialia* 5—6-flora; *Bracteæ* ovatæ, villis longis, decumbentibus incanæ, acumine subulato, nunc glabro. *Calyx* curvatus.

33. S. *compar*, caule erecto ramis glabris, foliis bipinnatifidis

 unciâ

unciâ longioribus, capitulis partialibus paucifloris communique breviter pedunculatis, bracteis tomentosis, calycibus barbatis.

Hab. In Africâ Australi. (v. s.)

Obs. Nimis affinis *S. decipienti.* Differt præsertim ramis glabris, calycibus barbatis villis brevissimis patulis, bracteis exterioribus tenuissimè tomentosis, acumine recurvo.

34. S. *Roxburgii*, caule erecto, foliis triternatis fastigiatis semunciâ brevioribus, capitulo communi partialibusque sessilibus paucifloris.

Hab. In Africâ Australi, prope Pardberg in Swartland. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* 3—4-pedalis, ramosissimus. *Rami* umbellati, spithamei, pubescentes. *Folia* adulta glabra, patula, flabelliformia, lacinulis acutissimis. *Capitulum* terminale, sæpè magnitudine juglandis minoris, quandoque vix cerasi. *Bracteæ* lanceolato-ovatæ, acuminatæ, villosissimæ, incanæ, acumine nudiusculo. *Calyx* argenteo-sericeus, villis laxiùs adpressis. *Stigma* cylindraceo-clavatum.

††† *Pedunculi divisi. Capitulis distinctis, corymbosis v. racemosis.*

35. S. *candicans*, capitulis racemosis paucifloris, pedunculis partialibus calyce barbato brevioribus, foliis bipinnatifidis ramulisque incanis.

Hab. In Africâ Australi. (v. s.)

Obs. Facies *S. Burmanni β*, eique quam maximè affinis.

36. S. *Burmanni*, capitulis corymbosis subdecemfloris, calycibus fastigiatis sericeis apiceve nudiusculis pedunculo partiali brevioribus, foliis bipinnatifidis setaceis vix biuncialibus.

α. Ramis

α. Ramis foliisque pilosiusculis; capitulis turbinatis, bracteis acumine glabriusculo; calycis laminis demùm nudiusculis.

Abrotanoides arboreum monamotapense floribus in ramulorum cymis. *Plukn. Mant.* 1. *t.* 329. *f.* 1. fide specim. in illius Herb.

Serraria foliis tenuissimè divisis floribus rubris apetalis. *Burm. Afr. p.* 264. *t.* 99. *f.* 1. mala, nisi quoad figuram capitulorum.

Leucadendron Serraria α. *Linn. Sp. Pl. ed.* i. *p.* 93. *ed.* ii. *p.* 137.

Protea Serraria. *Linn. Mant.* 188.* *Herb. Linn. Thunb. Diss. n.* 6.* *Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 508. *Lam. Illust. Gen.* 1. *p.* 240. *n.* 1268. *Poiret. Encyc. Botan.* 5. *p.* 660.

β. Ramis foliisque subsericeis; capitulis basi obtusis, bracteis totis calycibusque sericeis.

Hab. In Africæ Australis depressis sterilibus, et ad latera montium. α. ubique. β. rariùs; fortè distincta species: (α. v. v. juxta Simon's Bay. β. v. s. in Herb. Soc. Linn. et D. Hibbert.)

37. S. *triternata*, corymbis compositis, capitulis globosis; floribus viginti pluribus imbricatis, bracteis pedunculisque partialibus sericeis, foliis triternatis digitalibus cauleque glaberrimis.

Protea triternata. *Thunb. Diss. n.* 7*. *Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 509. *Poiret. Encyc. Botan.* 5. *p.* 660.

Protea argentiflora. *And. Repos.* 447. bona.

Hab. In Africâ Australi, prope fluvium ad Roode Zant. *D. Niven.* (v. s. in Herb. Banks., Hibbert., et Soc. Linn.)

Desc. *Frutex* erectus, orgyalis. *Rami* rubicundi crassitie

 pennæ

pennæ anserinæ. *Folia* patentia. *Corymbus* paniculatus, foliis sæpiùs longior, ramis glabris, ramulis tomentosis, incanis, subangulatis. *Bracteæ* ad divisuras glabriusculæ, acutæ, patentes. *Capitula* magnitudine cerasi nigri. *Bracteæ* ovatæ, acuminatæ. *Calyx* argenteo-sericeus, villis laxiùs decumbentibus. *Stigma* ovale.

38. S. *elongata*, corymbis simplicibus subcompositisve, pedunculo communi elongato: partialibus bracteisque glabris: acumine subulato recurvo dimidium baseos ovatæ superante, foliis 2—3-pinnatifidis digitalibus.

Leucadendron elongatum. *Berg. Act. Stockh.* 1766. *p.* 327*. *Berg. Cap.* 27.*

Protea glomerata. *Thunb. Diss. n.* 8*. exclus. synon. Linnæi et fortè Burmanni. *Thunb. Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 509. sec. descrip. a Thunb. mutuato.

Protea thyrsoides. *Lam. Illust. Gen.* 1. *p.* 240. *n.* 1267. *Poiret. Encyc. Botan.* 5. *p.* 660*.

Hab. In Africæ Australis montibus. Hottentots-Holland-Kloof. Kleine-hoot-Hoek. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks. et Soc. Linn.)

Desc. *Frutex* erectus, subramosus, sesquipedalis, glaber. *Folia* (*Crithmi*) ad apicem rami articulive annotini conferta, infrà nulla. *Pedunculus* communis 3—10-uncialis, infra bracteis distantibus, apice corymbosus. *Capitula* globosa, 16—20-flora, superiora præcociora. *Bracteæ* scariosæ, latè ovatæ. *Calyx* sericeus. *Stigma* clavato-oblongum.

39. S. *crithmifolia*, racemis simplicibus, pedunculo communi elongato partialibusque glabris, capitulis subtrigintifloris, bracteis glaberrimis latioribus quàm longis: mucrone brevissimo obtuso erecto, foliis bi-tripinnatifidis digitalibus.

Hab.

Hab. In Africâ Australi. *D. Niven.* (v. s. in Herb. D. Hibbert.)

Desc. *Frutex* erectus, simplex? *Folia* 3—4-uncialia, laciniis tereti-usculis, callo apicis obtuso. *Pedunculus* terminalis, scapiformis, sæpè infra racemum 8—10 uncias æquans, bracteis paucissimis. *Racemus* scapo plerumque brevior, 8—10-florus. *Pedunculi* partiales, capitulo longiores, basi dilatatâ, cum processu scutelliformi racheos articulati. *Capitula* magnitudine avellanæ, globosa. *Calyx* semuncialis. *Nux* undique pubescens, pedicello brevissimo, glabro, rugoso.

9. NIVENIA.

Paranomus. *Salisb. Parad.*

Char. Gen. *Calyx* quadrifidus, æqualis, totus deciduus. *Stigma* clavatum, verticale. *Nux* ventricosa, nitens, sessilis, basi integrâ. *Involucrum* simplici serie tetraphyllum, quadriflorum, fructiferum induratum; *Receptaculo* plano epaleato.

Habitus. Fructices. Folia *sparsa, inferiora bipinnatifida filiformia; superiora, in quibusdam, indivisa, plana.* Involucra *in spicam rariùsve capitulum terminale digesta, sessilia, bracteâ unicâ subtensa.* Flores *purpurascentes.*

This genus is published by Mr. Salisbury: his primary generic character does not indeed at all differ from that which he has given to Mimetes; in his account of Inflorescence, however, it is evident he understood the genus nearly as I have here proposed it: I should therefore have adopted his name had it appeared to me tenable; but I am disposed to believe that he will, on reconsidering the subject, see the propriety of relinquishing it; for the irregularity or unusual structure, which (if I understand him) he says exists "tot partibus diversis," only takes place in the leaves of a small number

number of species; on the other hand, the flowers of all are perfectly regular, and that too in opposition to some of the most nearly related genera, while the great uniformity and regularity of inflorescence forms an essential part of its character. I have therefore named it in honour of Mr. James Niven, an intelligent observer and indefatigable collector, to whom botanists are indebted for the discovery of many new species, especially in the two extensive South-African families of Erica and Proteaceæ.

† *Folia superiora indivisa, latiora.*

1. N. *Sceptrum*, foliis obovatis lanceolatisve planiusculis margine simplicibus, calyce sericeo villis adpressis.

Protea Sceptrum Gustavianum. *Sparm. in Act. Stockh.* 1777. *p.* 55. *t.* 1. bona. *Linn. Suppl.* 116. (*Herb. Linn.*)

Protea Sceptrum. *Thunb. Diss. n.* 12.* *Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 511. *Poiret. Encyc. Botan.* 5. *p.* 662.

Protea alopecuroides. *Lam. Illust. Gen.* 1. *p.* 240. *n.* 1272.

Hab. In Africæ Australis summis montibus Hottentots-Holland. (v. s. in Herb. Banks.)

Obs. Involucri fructiferi foliola aucta, indurata.

*2. N. *marginata*, foliis latioribus quàm longis cucullatis marginatis, calyce sericeo villis adpressis, involucri foliolis acutis apice glabriusculis.

Hab. In Africæ Australis montibus. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex.* *Rami* umbellati, stricti, glabri, rubicundi. *Folia* subrotunda, parùm latiora quàm longa, diametro 8—10-lineari, glauca, margine cartilagineo, latiusculo, semipellucido, (infima nondum visa). *Spica* subsessilis, sesquiuncialis.

cialis. *Bracteæ* subulatæ, concavæ, glabriusculæ. *Stylus* glaber. *Stigma* clavâ oblongâ.

3. N. *spathulata*, foliis latioribus quàm longis cucullatis marginatis, involucri foliolis obtusis, calyce barbato, stylo glabro, stigmate clavato-oblongo.

Protea spathulata. *Thunb. Diss. n.* 58*. *t.* 5. *Prod.* 28. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1218. *Willd. Sp. Pl.* 1. *p.* 533. *Poiret. Encyc. Botan.* 5. *p.* 642.

Hab. In Africæ Australis montibus, Platte-Kloof. *D. Masson.* (v. s. in Herb. Banks.)

Obs. Folia infima 2—3-pinnatifida, filiformia, canaliculata.

*4. N. *parvifolia*, foliis latioribus quàm longis cucullatis, calycibus barbatis, stylo lanato, stigmate conico-capitato.

Protea Sceptrum. *Lam. Illust. Gen.* 1. *p.* 241. *n.* 1273?

Protea Gustaviana. *Poiret. Encyc. Botan.* 5. *p.* 663? exclus. syn. Sparm. et Linnei.

Protea spathulata. *Thunb. Diss. tab.* 5. quoad figuram.

Hab. In Africæ Australis montibus. *D. Masson.* (v. s. in Herb. Banks., Soc. Linn., Hibbert.)

Desc. *Frutex* ramosissimus. *Rami* umbellati, patentes; ramuli tenuissimè pubescentes. *Folia inferiora* bipinnatifida, filiformia, canaliculata; *reliqua* orbiculato-rhombea, frequentia, glaberrima, diametro vix unguiculari, margine cartilagineo, augusto, crenulato. *Petioli* adpressi, foliis breviores. *Spicæ* terminales, solitariæ, v. aggregatæ, sesquiunciales—biunciales, dum solitariæ sessiles, dum aggregatæ sæpè pedunculatæ. *Involucrum* foliolis subrotundis, fructiferis auctis, induratis. *Stylus* angulatus, dimidio inferiore longiore, lanato. *Stigma* magnum, apice styli duplo crassius, rugosiusculum.

†† *Folia*

†† *Folia omnia bipinnatifida.*

5. N. *spicata*, pedunculis subumbellatis dimidio spicæ cylindraceæ longioribus, bracteis subtendentibus pedunculique ovatis, involucris inferioribus distinctis, stylis ad duas tertias villosissimis, foliis glabris, ramis tomentosis.

Leucadendron spicatum. *Berg. Act. Stockh.* 1766. *p.* 327*. *Berg. Cap.* 25.*

Protea spicata. *Linn. Mant.* 187.* (*Herb. Linn.*) *Thunb. Diss. n.* 11.* *Prod.* 25. *Willd. Sp. Pl.* 1. *p.* 511.

Hab. In Africæ Australis montibus. Hottentots-Holland-Kloof. (v. s. in Herb. Banks.)

Desc. *Frutex* erectus, ramis tenuissimè tomentosis, villis præterea nullis. *Folia* subtriternata, biuncialia, canaliculata, callis obtusis. *Pedunculi* terminales, quandoque solitarii, sæpiùs 3—5 umbellati, tomento villisque brevibus patulis incani; bracteis alternis, numerosis, adpressis; sesquiunciales—biunciales. *Spicæ* sesquiunciales, usque $2\frac{1}{2}$ uncias æquantes. *Involucra* superiora conferta, inferiora distincta; bracteis subtendentibus ovatis, acumine brevissimo; *foliolis* ovatis, acutis, fructiferis auctis, induratis. *Calyx* basi villosus, ungues tomentosi, laminis breviter barbatis. *Stylus* ipsâ basi et tertia parte superiore glabris. *Stigma* clavato-ovale. *Nux* ovata, cortice albo nitente tenuissimo; denudata fusca, basi parum incrassatâ, stylo diu terminata.

6. N. *crithmifolia*, pedunculis umbellatis spicas conico-cylindraceas subæquantibus, bracteis subtendentibus ovatis acuminatis, involucris alternis: foliolis obtusis, stylis ad medium villosis, foliis divaricatis glabris.

Protea Lagopus. *And. Repos.* 243.

Hab.

Hab. In Africæ Australis montibus. *D. Niven.* (v. s. in Herb. Hibbert.)

Obs. Nimis affinis P. spicato, et fortè haud distincta species: differt tamen foliis divaricatis, lacinulis latioribus, sursum paulò dilatatis; bracteis pedunculi paucioribus parùmque angustioribus; spicis pedunculo vix longioribus; involucris magis distinctis, foliolis obtusioribus tomento arctè adpresso; styli dimidio superiore glabro.

7. N. *media*, spicis cylindraceis pedunculo quater longioribus, bracteis subtendentibus capitulorum lanceolato-subulatis, involucris inferioribus subdistinctis: foliolis ovatis acutis apice imberbibus, stylo infra medium pubescenti, foliis glabris, ramis tomentosis.

Protea spicata. *And. Repos.* 234?

Hab. In Africæ Australis montibus, frequens. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* 6—8 pedes altus (*Niven*). *Rami* umbellati, stricti, tomento tenuissimo cinerascentes. *Folia* erecta, sesquiuncialia; inferiora biternata et subtriternata; superiora trifida, laciniis lateralibus subsimplicibus. *Pedunculi* terminales, solitarii, vix unciales, villosi, bracteis lanceolatis, sparsis, erectis, tomentosis. *Spicæ* 3—5 uncias longæ, involucris distinctis, tamen approximatis, foliolis acutissimis, tomento arctè adpresso. *Calyx* tubo tomentoso, involucro ferè ter longiore; laminis villis brevibus, sericeis, subdecumbentibus, barbatis. *Stylus* vix ultra unam tertiam a basi pubescens. *Stigma* gracile, clavatum.

8. N. *Lagopus*, spicis subsessilibus cylindraceis, capitulis imbricatis: bracteis subtendentibus lanceolato-subulatis: involucri

lucri subrotundis apice acuto barbato, stylo infra medium pubescente, foliis adultis glabris: junioribus ramulisque pilosis.

Protea Lagopus. *Thunb. Diss. n.* 10.* *Willd. Sp. Pl.* 1. *p.* 510.

Hab. In Africæ Australis montibus. *Gul. Roxburgh M. D.* (v. s.)

Desc. *Frutex* erectus. *Rami* umbellati. *Folia* vix sesquiuncialia, modicè patentia, biternata. *Spicæ* solitariæ, densæ, 2—4 unciales, pedunculo quandoque semunciali, sæpè brevissimo v. nullo. *Bracteæ* subtendentes apice barbatæ. *Calyx* unguibus tomentosis, laminis barbatis, villis longis, numerosis, patulis. *Stylus* vix ad medium pubescens. *Stigma* ovali-clavatum.

*9. N. *mollissima*, spicis pedunculos vix æquantibus, foliis sericeis triternatis (uncialibus), calycis unguibus tomentosis: laminis barbatis.

Hab. In Africæ Australis montibus. *D. Joh. Roxburgh.* (v. s. in Herb. Banks., Lambert., Linn. Soc.)

Desc. *Frutex* erectus, tomentosus, incanus. *Rami* ramulique tomento arctè adpresso. *Folia* mollissima, profundè trifida, lacinulis fastigiatis. *Pedunculi* terminales, subsolitarii, foliis breviores. *Spicæ* subovatæ, capitulis inferioribus distinctis, bracteis ovatis acutis, involucri similibus, utrisque tomentosis, imberbibus. *Calycis* ungues involucro ferè ter longiores. *Stylus* infra medium pubescens. *Stigma* gracile. *Nux* ovata, cuticulâ albâ nitente tenuissimè pubescente, basi incrassatâ styli diu coronata; involucri foliolis coriaceo-induratis, parùmque auctis, demùm patulis cincta.

*10. N. *capitata*, capitulo communi globoso subsessili, unguibus

laminisque

laminisque calycis barbatis, foliis semuncialibus: ramulorum inferioribus glabris.

Hab. In Africæ Australis montosis, near Brant-fly's Hill. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks., Lambert., Soc. Linn.)

Desc. *Frutex* erectus, tripedalis et ultrà. *Rami* umbellati, ultimi tomentosi. *Folia* biternata, canaliculata, superiora ramulorum sericea. *Capitula* communia vix magnitudine cerasi nigri, pauciflora, quandoque aggregata breviterque pedunculata. *Involucrum* foliolis lanceolato-ovatis, acutis. *Stylus* medio pubescens, utroque fine glaber. *Stigma* ovali-clavatum.

10. SOROCEPHALUS.

Spatallæ sp. *Salisb. Parad.*

Char. Gen. *Calyx* quadrifidus, æqualis, totus deciduus. *Stigma* verticale, clavatum. *Nux* ventricosa, brevissimè pedicellata v. basi emarginata. *Involucrum* subsimplici serie 3—6-phyllum, definitè pauciflorum v. uniflorum: fructiferum non mutatum. *Receptaculum* epaleatum.

Habitus. Frutices. *Ramis virgatis.* Folia *sparsa, filiformia v. plana, indivisa, infima rariùs bipinnatifida.* Involucra *subsessilia, unibracteata, in spicam capituliformem basi nunc bracteis imbricatis subtensam, congesta.* Flores *purpurascentes.*

Etym. σωρος cumulus, et κεφαλη caput; ob capitula congesta.

Obs. Genus complectens phalanges duas facie et structurâ parùm diversas, quarum *prima* habitu et inflorescentiâ *Spatallæ* proxima, diversa tamen stigmate verticali, calyceque semper regulari: *secunda* e speciebus inter se convenientibus capitulo communi involucrato, sed discrepantibus numero florum foliolorumque involucri partialis, nec non foliis in quibusdam filiformibus, in aliis planis, et in unicâ dimor-

 phis

phis instar Niveniæ: fructus in hujus sectionis duabus speciebus tantummodo observatus, in alterâ (foliis filiformibus) brevissimè pedicellatus, basi obsoletè emarginatâ, tenuissimè pubescens; in alterâ (foliis planis) glaberrimus, sessilis, basi angustatâ, profundè emarginatâ.

† Spica *nudiuscula.* Involucra 1—3-*flora.* Nux *brevissimè pedicellata, basi integrâ.* Folia *filiformia, indivisa.*

*1. S. *setaceus*, involucris unifloris, foliis setaceis incurvis (uncialibus) ramulisque hirsutis.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* erectus. *Rami* virgati, stricti, umbellati. *Folia* frequentia, vix sesquiuncialia, mucrone setaceo, sphacelato: inferiora minùs incurva. *Capitulum* terminale, sessile, ovatum, magnitudine cerasi nigri. *Calyx* unguibus laxiùs tomentosis; laminis barbatis. *Stigma* conico-ovatum.

*2. S. *salsoloides*, involucris unifloris, foliis triquetro-filiformibus incurvis (semuncialibus) glabris.

Hab. In Africâ Australi. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* erectus, ramosissimus. *Rami* glabri, ramuli tenuissimè pubescentes. *Folia* frequentia, semiteretia, suprà sulcata, mucrone acuto subconcolori. *Capitulum* terminale, sessile, ovatum, vix magnitudine cerasi nigri, bracteolis paucis, brevissimis, lanceato-linearibus, subtensum. *Calyx* barbatus, villis brevibus. *Stigma* erectum v. parùm inclinans.

*3. S. *imberbis*, involucris trifloris, laminis calycis acuminibusque bractearum glabris.

Hab.

Hab. In Africâ Australi. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* erectus, ramosissimus. *Ramuli* pubescentes. *Folia* glabra, uncialia, modicè patentia, parùm incurva, suprà sulcata, acutè mucronata. *Capitulum* terminale, breviter pedunculatum, subglobosum, magnitudine cerasi nigri. *Bracteæ* lanceolatæ, ciliatæ, acumine subulato, glabro. *Calycis* ungues barbati. *Stylus* strictus. *Stigma* ovato-clavatum; æquale.

*4. S. *spatalloides*, involucris trifloris subpedicellatis, calycis laminis barbatis.

Hab. In Africâ Australi; prope Franche-hoek. *D. Niven.* (v. s. in Herb. Soc. Linn., et D. Hibbert.)

Desc. *Frutex* erectus. *Rami* umbellati, tenuissimè pubescentes. *Folia* modicè patentia, parùm incurva, vix uncialia, juniora pilosa. *Capitula* solitaria v. 2—3 aggregata, breviter pedunculata, ovata v. oblonga, magnitudine avellanæ. *Bracteæ* lanceolatæ, acutæ, pubescentes, apice quandoque glabriusculo. *Calycis* laminæ longiùs barbatæ. *Stylus* apice sæpiùs incurvo, modò rectiusculo. *Stigma* styli hamati parùm inæquale; rectiusculi æquilaterale, ovatum.

† † Spica *subinvolucrata.* Involucra 4—6-*flora.* Nux *basi emarginatâ.*

*5. S. *tenuifolia*, foliis filiformibus (semunciâ brevioribus), capitulis paucifloris, calycis laminis plumoso-barbatis: interiori nudiusculâ.

Hab. In Africæ Australis montosis; in humidis prope Breede River. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* 3—4 pedes altus (*Niven*), facie *Spatallæ proliferæ.* *Rami* glabri, rubicundi, vestiti; ramuli villosiusculi. *Folia* imbricata,

imbricata, scabriuscula, mucrone acuto; juniora hirsuta. *Capitulum commune* terminale, sessile, magnitudine pisi, e partialibus 2—4 compositum. *Involucra partialia* subimbricata, foliolis lanceolatis, barbatis, apice glabriusculo. *Calyx* profundè quadrifidus, æqualis. *Stylus* strictus. *Stigma* æquilaterale, erectum, ovatum.

6. S. *lanatus*, foliis triquetro-filiformibus (semunciâ longioribus) suprà sulcatis, capitulis multifloris, calycis laminis omnibus plumoso-barbatis.

Protea lanata. *Thunb. Diss. n.* 30.* *t.* 3. *Prod.* 26. *Willd. Sp. Pl.* 1. *p.* 519. *Poiret. Encyc. Botan.* 5. *p.* 653.

Hab. In Africæ Australis montosis. Swartland. (v. s. in Herb. Banks.)

Desc. *Frutex* erectus. *Rami* subumbellati, stricti, vestiti, tenuissimè pubescentes. *Folia* imbricata, 5—8 lineas longa. *Capitulum* terminale, solitarium, sessile, globosum, magnitudine avellanæ majoris: *partialia* densissimè congesta, 5—8-flora: *Involucris* 5—7-phyllis, foliolis augusto-lanceolatis, barbatis. *Calyx* profundè 4-fidus, æqualis. *Stylus* strictus. *Stigma* ovatum, æquilaterale, stylo ferè duplò crassius. *Nux* brevissimè pedicellata basique leviter emarginata, tenuissimè pubescens, cortice tenui, rugosiusculo, fusco.

Obs. Variat foliis subtùs triquetris teretibusque, scabriusculis et lævibus.

7. S. *imbricatus*, foliis lanceolatis subtùs scabris, unguibus calycis glanduloso-pilosis, stigmate clavato.

Protea imbricata. *Thunb.Diss. n.* 45. *t.* 5. *Prod.* 27. *Linn. Suppl.* 116*. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1222. *Willd. Sp. Pl.* 1. *p.* 527. *Poiret. Encyc. Botan.* 5. *p.* 643. *And. Repos.* 527.

Hab.

Hab. In Africæ Australis montibus. (v. s. in Herb. var. et v. in Hort. D. Hibbert.)

Desc. *Frutex* erectus. *Rami* elongati, stricti. *Folia* imbricata, subtùs convexiuscula venoso-striata, suprà concaviuscula lævia, unguicularia, mucrone incurvo. *Capitulum* terminale, sessile, subovatum, solitarium, v. e. 2—3 aggregatis compositum. *Involucrum commune* polyphyllum, imbricatum, capitulo brevius; foliolis lanceolatis, membranaceis, coloratis, scabriusculis. *Involucra partialia* sæpiùs quadriflora, tetraphylla; foliolis lanceolatis, hirsutis. *Calyx* tubo gracili, laminis barbatis. *Ovarium* barbatum. *Stylus* strictus. *Stigma* elliptico-clavatum, hinc gibbosiusculum. *Nux* glaberrima, nitens, fusca, oblonga, basi angustatâ concolori emarginatâ.

*8. S. *diversifolius,* foliis spathulato-lanceolatis subtùs lævibus: infimis bipinnatifidis, unguibus laminisque calycis barbatis, stigmate cylindraceo.

Hab. In Africæ Australis montibus saxosis prope Goud Rivier. *D. Niven.* (v. s. in Herb. Banks., Lambert., et Hibbert.)

Desc. *Frutex* erectus, glaber, bipedalis usque orgyalis, indivisus, v. bifidus, strictus, crassitie pennæ olorinæ, suprà pubescens. *Folia infima* trifido-bipinnatifida, canaliculata, biuncialia; *reliqua* imbricata, obtusiuscula, parùm concava, vix semuncialia. *Capitulum* terminale, solitarium, sessile, ovatum, obtusum, magnitudine pruni minoris.

11. SPATALLA.

Salisb. Parad.

Char. Gen. *Calyx* quadrifidus, laciniâ interiore (in plerisque) majore, totus deciduus. *Stigma* obliquum, dilatatum. *Nux* ventricosa, brevissimè pedicellata. *Involucrum* simplici serie 2—4-phyllum,

2—4-phyllum, uniflorum v. definitè pauciflorum. *Receptaculum* epaleatum.

Habitus. Frutices. Folia *sparsa, filiforma, indivisa.* Involucra *terminalia, spicata v. racemosa, unibracteata, fructifera haud mutata.* Flores *purpurascentes.* Anthera *laciniæ majoris calycis proportionatim major, et in quibusdam unica fertilis.*

† Involucra *uniflora.* Stigma *concavum, cochleariforme.* Calyx *inæqualis.*

*1. S. *mollis*, involucro diphyllo: foliolis integerrimis, foliis strictis ramulisque villosis.

Hab. In Africæ Australis montibus. *D. Joh. Roxburgh.* (v. s. in Herb. Lambert.)

Desc. *Frutex* erectus, ramosissimus. *Rami* rubicundi, ramuli graciles, erecti. *Folia* erecto-patentia, 7—8 lineas longa, callo acutissimo, villis modicè patentibus sericea. *Spica* sessilis, erecta, solitaria, oblongo-cylindracea, densa, racemosa, vix uncialis. *Bracteæ* foliaceæ, pedicellis duplò longiores. *Involucrum* foliolis ovatis, villosis, exteriore latiore. *Calyx* densè barbatus, laminâ laciniæ majoris villis marginalibus inflexis. *Squamulæ hypogynæ* quatuor, lineares, persistentes.

*2. S. *pedunculata*, involucro diphyllo: foliolo latiore tridentato, spicâ imbricatâ, pedunculo foliis longiore triquetris incurvis basi attenuatis, bracteis sericeis involucro brevioribus.

Hab. In Africæ Australis montibus. Kleine-Hoot-Hock. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* erectus, ramosissimus, foliis ramisque adultis glabris, junioribus sericeis. *Folia* frequentia, ferè uncialia, basi attenuatâ, erectâ, suprà patentia, falcato-incurva, callo apicis

apicis obtusiusculo. *Pedunculi* sesquiunciales, solitarii, sericei; bracteis alternis, subulatis. *Spica* cylindracea, pedunculo vix longior; pedicellis, involucris, calycibusque sericeis.

*3. S. *nivea*, involucro diphyllo: foliolo latiore tridentato, spicâ imbricatâ, pedunculo foliis breviore, rectiusculis acutissimis bracteis foliaceis villosiusculis involucra æquantibus.

Hab. In Africæ Australis montibus. *D. Niven.* (v. s. in Herb. D. Hibbert.)

Desc. *Frutex* erectus, ramosissimus, ramis foliisque adultis glabris, novellis sericeis. *Folia* uncialia, leviter incurva, v. rectiuscula, basi parùm attenuata. *Pedunculi* solitarii, subsericei, bracteis alternis subulatis. *Spica* sesquiuncialis, pedunculo duplò longior. *Involucri* foliolum exterius profundè tridentatum, dente intermedio angustiore. *Calycis* laminæ villis brevibus, patulis, niveis barbatæ.

*4. S. *ramulosa*, involucro diphyllo: foliolo latiore trifido, spicâ subsessili imbricatâ, bracteis superioribus longitudine pedicellorum, foliis acutè mucronatis.

Protea foliis setaceis, floribus racemosis. *Hort. Cliff.* 496?

Leucadendron racemosum. *Linn. Sp. Pl. ed.* i. *p.* 91? *ed.* ii. *p.*194? *Berg. Act. Stockh.* 1766. *p.* 325.* *Berg. Cap. p.* 23.*

Protea racemosa. *Thunb. Diss. n.* 21.*? *Prod.* 26?

Hab. In Africæ Australis montibus. Roode Zant Kloof. (v. s. in Herb. Banks., Soc. Linn.)

Desc. *Frutex* erectus, ramosissimus; ramis virgatis filiformibus, foliisque adultis glabris, novellis sericeis. *Folia* frequentia, modicè patentia, parùmque incurva, basi attenuata, vix uncialia, suprà canaliculata, subtùs convexa, callo acuto mucroni-

mucroniformi. *Spica* terminalis, breviter pedunculata, cylindracea, uncialis, sesquiuncialis, densa, subracemosa, floribus omnibus imbricatis, ramulo uno alterove sericeo brevi, sæpissimè stipata. *Bracteæ* omnes pedicellos pariter tomentosos æquantes. *Involucrum* laciniâ mediâ labii majoris angustiore. *Calyx* breviter denséque barbatus, villis marginalibus, laminæ majoris arctè inflexis. *Stigma* cochleariforme, papillâ centrali.

*5. S. *laxa*, involucro diphyllo: foliolo latiore trifido, racemo subpedunculato, laxiusculo, bracteis superioribus pedicello brevioribus.

Hab. In Africæ Australis montibus. Kleine-Hoot-Hoek. *Gul. Roxburgh M. D.* (v. s. in Herb. Banks., Lambert., Soc. Linn.)

Desc. *Frutex* erectus, 4—6 pedalis, (*Niven*) ramosus. *Rami* graciles, virgati, rubicundi, ramuli subsericei. *Folia* patenti-erecta, leviter incurva, v. rectiuscula, basi attenuata, callo apicis acutiusculo, v. obtusiusculo, uncialia, inferiora glabra, superiora sericea. *Racemi* breviter pedunculati, solitarii, erecti, sesquiunciales, ramulo brevi quandoque stipati. *Bracteæ* tomentosæ, pedicellis fructiferis breviores; inferiores floriferorum subæquantes. *Involucra* vix longitudine pedicellorum, sericea, fructifera labio majore tripartito, laciniâ intermediâ angustissimâ. *Nux* ovata, subsessilis, sericea, involucro persistenti duplò longior *stylo* curvato diù coronata, basi barbatâ pilis strictis.

*6. S. *bracteata*, involucro diphyllo: foliolo latiore profundè trifido, spicâ pedunculatâ imbricatâ, bracteis teretibus involucra pedicellata superantibus, foliis incurvis (uncialibus) glabriusculis.

Protea

Protea racemosa. *Linn. Mant.* 187? (*Herb. Linn.*)

Hab. In Africæ Australis montibus. Franche Hoek. (v. s. in Herb. Banks., Lambert., Soc. Linn.)

Desc. *Frutex* erectus, 6—7 pedalis, (*Niven*) ramosissimus, ramulis ultimis sericeis. *Folia* e basi attenuatâ, adpressâ, suprà patentia, et falcato– v. sigmoideo-curvata, callo obtusiusculo, adulta glabra, recentiora sericea, quandoque sesquiuncialia. *Pedunculi* terminales, solitarii, spicâ sesquiunciali breviores. *Pedicelli* imbricati, inferiores involucra æquantes, superiores iisdem parùm breviores. *Involucra* sericea, labio majore sæpè tripartito. *Calyx* unguibus tomento adpresso; laminis barbatis villis modicè patentibus, marginalibus haud inflexis.

*7. S. *sericea*, involucro diphyllo: foliolo latiore tripartito, spicâ sessili imbricatâ: bracteis involucra subsessilia æquantibus, foliis semuncialibus ramulisque sericeis.

Hab. In Africæ Australis montibus. *Gul. Roxburgh M. D.* (v. s. in Herb. Soc. Linn.)

Desc. *Frutex* erectus, ramosissimus. *Rami* ramulique virgati, stricti, hi sericei, illi glabri. *Folia* frequentia, imbricata, patenti-erecta, rectiuscula v. leviter incurva, suprà obsoletissimè sulcata. *Spicæ* solitariæ, vix unciales. *Involucra* labio majore laciniis subulatis, mediâ angustiore. *Calyx* unguibus tomentosis, laminis barbatis.

8. S. *prolifera*, involucro tetraphyllo: foliolis apice sphacelatis, spicâ conico-capitatâ: floribus subsessilibus.

Protea prolifera. *Thunb. Diss. n.* 27.* *tab.* 4. *Prod.* 26. *Linn. Suppl.* 118. *Lam. Illust. Gen.* 1. *p.* 238. *n.* 1233. *Willd. Sp. Pl.* 1. *p.* 518. *Poiret. Encyc. Botan.* 5. *p.* 654.

Hab. In Africæ Australis montibus. Hottentots-Holland: Roode Zant. (v. s. in Herb. Banks., Lambert., Soc. Linn.)

Desc. *Frutex* erectus, sesquipedalis, bipedalis, ramosissimus. *Rami* ramulique umbellati, hi subsericei, illi rubicundi glabriusculi. *Folia* imbricata, conferta, vix unguicularia, ramulorum recentiorum sericea. *Spica* sessilis. *Bracteæ* foliaceæ. *Involucri* foliola subulata, demùm glabriuscula. *Calyx* densissimè barbatus, villis brevibus sericeis; laminâ interiori duplò majori, villis marginalibus arctè inflexis. *Stigma* planiusculum, papillâ centrali. *Squamulæ hypogynæ* quatuor, lineari-subulatæ.

*9. S. *pyramidalis*, involucro tetraphyllo: foliolis acuminatis pedicellos subæquantibus, spicâ erectâ solitariâ sessili oblongo-pyramidali foliis semuncialibus duplò longiore.

Hab. In Africæ Australis montibus, prope Swellendam. *Gul. Roxburgh M. D.* (v. s. in Herb. Lambert. et Soc. Linn.)

Desc. *Frutex* erectus, ramosissimus, ramis ramulisque umbellatis, pubescentibus. *Folia* confertissima, modicè patentia, stricta v. parùm incurva, villosiuscula, callo acuto, mucroniformi. *Spica* densa, subuncialis. *Bracteæ* foliaceæ, involucra æquantes. *Involucra* pubescentia, foliolis e latiore basi subulatis, apice patulis, exteriori parùm angustiore. *Calyx* laminâ interiori parùm majori, villis marginalibus simplicibus. *Stigma* concavum, papillâ centrali. *Squamulæ hypogynæ* lineari-subulatæ. *Receptaculum* barbatum.

*10. S. *polystachya*, involucro tetraphyllo: foliolis apice patulis, spicis nutantibus aggregatis pedunculatis, foliis uncialibus curvatis.

Hab.

Hab. In Africæ Australis montibus. *Gul. Roxburgh M. D.* (v. s. in Herb. Lambert. et Soc. Linn.)

Desc. *Frutex* erectus, ramosissimus. *Rami* ramulique umbellati, rubicundi, ultimi pubescentes. *Folia* conferta, patula, subsigmoideo-curvata, villosa, mucrone acutissimo, novella sericea. *Spicæ* 4—6, reflexæ, sesquiunciales, breviter pedunculatæ, ramulis umbellatis longioribus stipatæ. *Bracteæ* pedicellis ter longiores. *Involucra* foliolis subæqualibus, concavis, lanceolato-subulatis, acuminatis. *Calyx* subæqualis. *Stigma* planiusculum, papillâ centrali. *Nux* brevissimè pedicellata, tenuissimè pubescens.

†† Involucra 3—4-*flora*. Stigma *convexiusculum*. Calyx *subæqualis*.

11. S. *incurva*, spicis racemosis subpedunculatis, bracteis involucro tomentoso (sub-4-floro) brevioribus, foliis incurvis, calycibus inæqualibus.

α. Spicæ sæpè aggregatæ. Bracteæ pedicellos subæquantes. Folia ferè uncialia, inferiora ramulorum glabra.

Protea incurva. *Thunb. Diss. n.* 22*. *tab.* 3. bona. *Willd. Sp. Pl.* 1. *p.* 516. *Poiret. Encyc. Botan.* 5. *p.* 652.

β. Spicæ solitariæ. Bracteæ pedicellos superantes. Folia semuncialia, ferè omnia ramulorum sericea.

Hab. In Africæ Australis arenosis humidis subumbrosis; Roode Zant Cascade. (v. s. α. in Herb. Banks., Lambert., Soc. Linn. β. in Herb, Hibbert.)

Obs. I. Calyx inæqualis. Stigma planiusculum, papillâ centrali.

Obs. II. β. Forsan distincta species : Foliis confertissimis, pedicellis involucro ferè dimidio brevioribus.

*12. S. *pro-*

*12. S. *propinqua*, spicâ subpedunculatâ, bracteis subulatis foliaceis involucra subsessilia tomentosa subbiflora æquantibus, foliis semuncialibus strictis ramulisque villosis, calycibus subæqualibus.

Hab. In Africâ Australi. *A. Auge.* (v. s. in Herb. Banks.)

Obs. Spica biuncialis. Pedicelli brevissimi. Nux pedicello manifesto, glabro, tenuissimè pubescens.

13. S. *caudata*, spicâ sessili, bracteis involucrisque ovato-lanceolatis glabriusculis ciliatis, foliis glabris acutis.

Protea caudata. *Thunb. Diss.* sec. ic. tab. 2.

Hab. In Africâ Australi; prope Palmetta River. *Masson.* (v. s. in Herb. Banks.)

Desc. *Frutex* erectus, ramosissimus; ramis umbellatis glabriusculis. *Folia* vix semuncialia, suprà canaliculata, acuta, stricta. *Spicæ* sæpè aggregatæ, cylindraceæ, densæ, unciales, quandoque biunciales. *Involucra* subsessilia, sæpiùs triflora. *Calyx* subæqualis, barbatus. *Stigma* convexum. *Nux* tenuissimè pubescens.

14. S. *Thunbergii*, spicâ sessili, bracteis involucrisque ovato-lanceolatis villosis, foliis calyce longioribus acutis canaliculatis ramisque pilosis.

Protea caudata. *Thunb. Diss. n.* 23.* secund. descript.

Hab. In Africæ Australis montosis. *D. Niven.* (v. s. in Herb. Hibbert.)

Desc. *Frutex* erectus, ramosissimus. *Folia* vix semuncialia, conferta, imbricata, stricta v. parùm incurva. *Spica* cylindracea, densa, uncialis, sesquiuncialis. *Involucra* brevissimè pedicellata, bracteis parùm longiora, villis persistentibus.

Calyx

Calyx subæqualis, laminis brevissimè barbatis, subsericeis. *Stigma* convexum. *Nux* tenuissimè pubescens, pedicello brevissimo, crasso, glabro.

*15. S. *brevifolia,* foliis calyce brevioribus obtusiusculis subsericeis triquetris, spicis densis, bracteis involucrisque pubescentibus.

HAB. In Africæ Australis montosis. *D. Masson.* (v. s. in Herb. Banks. et D. Aiton.)

DESC. *Frutex* erectus, ramis umbellatis, virgatis, pubescentibus. *Folia* subtriquetra, suprà canaliculata, patenti-erecta, villosiuscula, subtrilinearia. *Spica* solitaria, sessilis, uncialis, sesquiuncialis, rachi pedicellis bracteisque pubescentibus. *Bracteæ* e basi membranaceâ, lanceolatâ, subulatæ. *Involucra* brevissimè pedicellata, 2—3-flora. *Calyx* æqualis. *Stigma* convexum, papillâ elevatiore. *Squamulæ hypogynæ* quatuor subulatæ.

12. ADENANTHOS.

Labill. Nov. Holl. 1. *p.* 28.

CHAR. GEN. *Calyx* quadrifidus, infrà circumscissus. *Squamulæ* quatuor hypogynæ, basi persistenti calycis adnatæ. *Pistillum* calyce longius. *Stigma* verticale. *Nux* ventricosa. *Involucrum* uniflorum, imbricatum, 4—8-phyllum.

HABITUS. Frutices. Folia *sparsa, in diversis varia.* Flores *axillares, solitarii, rubicundi ; raro terminales, subaggregati, lutescentes.*

1. A. *obovata,* foliis obovatis integerrimis glabris.

Adenanthos obovata. *Labillard. Nov. Holl.* 1. *p.* 29.* *tab.* 37.

HAB. In collibus saxosis oræ australis Novæ Hollandiæ; Lewins Land. (ubi v. v.)

2. A. *cu-*

2. A. *cuneata*, foliis cuneatis sericeis apice dentato-crenato.
Adenanthos cuneata. *Labillard. Nov. Holl.* 1. *p.* 28.* *tab.* 36.
Hab. In Novæ Hollandiæ oræ australi; Lewins Land: prope littora. (ubi v. v.)

3. A. *sericea*, foliis filiformibus biternatis sericeis, floribus axillaribus solitariis, stylo glabro.
Adenanthos sericea. *Labillard. Nov. Holl.* 1. *p.* 29.* *tab.* 38.
Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in arenosis prope littora. (ubi v. v.)

4. A. *terminalis*, foliis filiformibus trifidis: laciniis lateralibus bifidis intermediâ indivisâ, floribus terminalibus solitariis ternisve, stylo villoso.
Hab. In Novæ Hollandiæ orâ australi. Flinders' Land: in depressis prope littora. (ubi v. v.)

13. SIMSIA.

Char. Gen. *Calyx* tetraphyllus, regularis, laminis reflexis. *Stamina* exserta. *Antheræ* tandem liberæ, primò cohærentes, lobis proximis vicinarum loculum constituentibus. *Stigma* dilatatum, concavum. *Nux* obconica.

Habitus. Frutices *humiles, glabri.* Folia *alterna, filiformia, dichotoma, petioli basi dilatatâ.* Capitula *globosa, parva, terminalia, racemosa, v. paniculata, involucro brevi v. nullo.* Flosculi *flavi, glabri, unibracteati.*

I have named this genus in honour of Dr. John Sims the respectable editor of the Botanical Magazine.

*1. S. *tenuifolia*, capitulis nudis, paniculæ ramis subunifloris bracteolatis.

Hab.

Hab. In Novæ Hollandiæ orâ australi: Lewins Land; ad latera saxosa collium. (ubi v. v.)

*2. S. *anethifolia*, capitulis involucratis bracteolis imbricatis, paniculæ ramis multifloris: ramulis capitula subæquantibus.

Hab. In Novæ Hollandiæ orâ australi: Lewins Land; in arenosis prope littora. (ubi v. v.)

14. CONOSPERMUM.

Smith, Linn. Trans. vol. 4. *Exot. Bot. Gært. Carp.* 3. *p.* 198. *t.* 215.

Char. Gen. *Calyx* tubulosus, ringens, laciniâ supremâ basi fornicatâ. *Antheræ* tres, inclusæ, laterales dimidiatæ, superior biloba: primò cohærentes, lobis proximis vicinarum loculum constituentibus. *Stigma* liberum. *Nux* obconica, papposa.

Habitus. Frutices. Folia *sparsa, integerrima, plana, rariùsve filiformia.* Spicæ *axillares v. terminales, compositæ, sensim florentes, hinc corymbosæ.* Flores *solitarii, sessiles, unibracteati, albi v. cærulescentes*; Calyce *deciduo*; Bracteâ *cucullatâ persistenti.*

Obs. Jussieu and Ventenat have referred this genus to the natural order Thymeleæ; but that it is a genuine Proteacea, as Dr. Smith has considered it, is proved by the erect embryo, the terminal style, and the æstivation of the Calyx; and is rendered evident by its affinity to Simsia, which, with the more usual appearance of this order, agrees with Conospermum in the structure of its Antheræ.

† *Calycis laciniæ acutæ, tubo vix longiores.* Conosperma vera.

1. C. *ellipticum*, foliis ovali-oblongis obtusis mucronulatis aveniis, pedunculis axillaribus.

Conospermum ellipticum. *Smith in Rees. Cyclop.*

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in ericetis aridis. (ubi v. v.)

2\. C. *taxifolium*, foliis lanceolato-linearibus acutis mucronatis tenuissimè pubescentibus verticalibus, basi tortis, pedunculis axillaribus.

Conospermum taxifolium. *Smith in Rees. Cyclop.*

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in ericetis. (ubi v. v.)

3\. C. *ericifolium*, foliis subulato-filiformibus imbricatis, spicis axillaribus pedunculo brevioribus.

Conospermum ericifolium. *Smith in Rees. Cyclop.*

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in ericetis. (ubi v. v.)

4\. C. *longifolium*, foliis oblongis linearibusve planis venosis, pedunculisque elongatis scapiformibus, corymbis decompositis, calycis limbo extùs pubescenti tubum vix æquante.

Conospermum longifolium. *Smith Exot. Bot. 2. p. 45. t. 82.*

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in ericetis collibusque saxosis. (ubi v. v.)

*5. C. *tenuifolium*, foliis lineari-filiformibus subcanaliculatis aveniis, pedunculisque elongatis scapiformibus, corymbis subsimplicibus, calycis limbo extùs pubescenti tubo longiore.

Hab. In Novæ Hollandiæ orâ orientali, prope Port Jackson; in collibus arenosis prope littora. (ubi v. v.)

*6. C. *cæruleum*, foliis oblongis lanceolatisve planis venosis, pedun-

culisque

culisque elongatis scapiformibus, corymbis compositis, calycis limbo glaberrimo tubo longiore.

Hab. In Novæ Hollandiæ, orâ australi: Lewins Land. (ubi v. v.)

†† *Calycis laciniæ caudatæ.* Chilurus.

*7. C. *teretifolium*, foliis teretibus pedunculisque elongatis, corymbis compositis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*8. C. *capitatum*, foliis linearibus elongatis tortilibus, capitulis sessilibus e spiculis paucifloris congestis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus apricis graminosis. (ubi v. v.)

††† *Incertæ tribus.*

*9. C. *distichum*, foliis filiformibus subdistichis curvatis, spicis axillaribus indivisis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis. (ubi v. v. flor. delaps.)

15. SYNAPHEA.

Char. Gen. *Calyx* tubulosus, ringens, laciniâ supremâ latiore. *Antheræ* tres, inclusæ, laterales dimidiatæ, inferior biloba: primò cohærentes, lobis proximis vicinarum loculum constituentibus! *Stigma* filamento superiori sterili connatum! *Nux* obovata.

Habitus. Frutices *humiles.* Folia *sparsa, plana, pulcherrimè reticulata, circumscriptione cuneiformia, lobata, inferiora ejusdem fruticis sæpiùs indivisa: petioli basi dilatatâ semivaginanti.*

 Spicæ

Spicæ *axillares v. terminales, simplices v. ramosæ.* Flores *alterni, solitarii, sessiles, unibracteati.* Calyx *flavus, deciduus, quadripartibilis.* Bractea *cucullata, persistens.*

Etym. συναφη connectio, ob peculiarem cohærentiam stigmatis v. apicis styli cum filamento sterili.

*1. S. *favosa*, foliis oblongo-cuneiformibus indivisis trilobisque: lobis integris, petiolis spicisque glabris, stigmate bicorni.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

2 S. *dilatata*, foliis apice dilatatis trilobis: lobis inciso-dentatis, petiolis spicisque villosis, stigmate bicorni.

Conospermum reticulatum. *Smith in Rees. Cyclop.*

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*3. S. *petiolaris*, foliis rameis petiolos subæquantibus tripartitis: lobis divisis planis; infimis trilobis integrisque, spicis elongatis ramosis, stigmate acuto.

Polypodium spinulosum. *Burm. Ind. p. 233. t. 67. f. 1.* vel ad hanc v. ad plantam congenerem pertinere videtur.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*4. S. *polymorpha*, foliis rameis brevissimè petiolatis tripartitis canaliculatis: lobis subdivisis; infimis indivisis trilobisque, spicis simplicibus pedunculo longioribus, stigmate acuto.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

16. FRANK-

16. FRANKLANDIA.

Char. Gen. *Calyx* hypocrateriformis, limbo quadripartito, plano, deciduo, tubo persistenti. *Antheræ* inclusæ, calyce adnatæ! *Squamæ* hypogynæ, in vaginam connatæ. *Nux* fusiformis, pedicellata, apice dilatato papposo.

Habitus. Frutex *glaber.* Folia *alterna, filiformia, dichotoma.* Spicæ *axillares, indivisæ, floribus alternis, unibracteatis, sordidè flavis.* Pollen *sphæricum.* Cotyledones *brevissimæ!*

This genus is named in honour of Sir Thomas Frankland, baronet, to whom English botany is much indebted, and whose valuable observations and excellent figures of submarine plants it is hoped he may be induced to communicate to the public.

* Franklandia *fucifolia.*

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis humidis. (ubi v. v.)

17. SYMPHIONEMA.

Char. Gen. *Calyx* regularis, tetraphyllus, basi cohærens, medio staminifer. *Filamenta* apice cohærentia! *Antheræ* distinctæ. *Glandulæ* nullæ hypogynæ. *Ovarium* dispermum. *Stigma* subtruncatum. *Nux* monosperma, cylindracea.

Habitus. Suffrutices *v.* Herbæ *glabræ, pilisve raris glandulosis.* Folia *tripartita, lobis divisis; inferiora opposita!* Spicæ *terminales et e summis alis, simplices.* Flores *alterni, sessiles, unibracteati.* Calyx *flavus, deciduus.* Bracteæ *cucullatæ, persistentes.*

*1. S. *palu-*

*1. S. *paludosum*, laciniis foliorum subulatis semiteretibus, rachibus bracteisque glaberrimis.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis paludosis. (ubi v. v.)

*2. S. *montanum*, laciniis foliorum planis linearibus uninervibus, rachibus bracteisque pubescentibus pilis glandulosis brevissimis.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in rupibus humidis. (ubi v. v.)

18. AGASTACHYS.

Char. Gen. *Calyx* regularis, tetraphyllus, basi cohærens, medio staminifer. *Filamenta* distincta. *Glandulæ* nullæ hypogynæ. *Ovarium* sessile, monospermum, trigonum. *Stigma* unilaterale.

Habitus. Frutex *glaberrimus*. Folia *sparsa, integerrima, plana*. Spicæ *numerosæ, terminales et e summis alis, simplices*. Flores *alterni, sessiles, unibracteati*. Calyx *flavescens, deciduus*. Pistillum *staminibus brevius*. Bracteæ *cucullatæ, persistentes*.

Etym. *αγαστσχυς* spicis abundans.

Agastachys *odorata*.

Hab. In Insulæ Diemen plagis australioribus; prope Adventure Bay: ubi primùm a *D. Nelson* detecta, nuperiùs lecta a *D. G. Caley*. (v. s. in Herb. Banks.)

19. CENARRHENES. *Labill. Nov. Holl.* 1. *p.* 36. *t.* 50.

Char. Gen. *Calyx* tetraphyllus, regularis, foliolis suprà angustatis, deciduus. *Stamina* basi calycis inserta. *Glandulæ*

quatuor

quatuor hypogynæ, staminiformes. *Ovarium* sessile, monospermum. *Stigma* simplex. *Drupa* baccata.

Habitus. Arbor *glabra.* Folia *alterna ; plana, dentato-serrata, nitida.* Spicæ *axillares, simplices.* Flores *alterni, sessiles, unibracteati.*

Obs. Labillardiere considers this genus as most nearly related to Lauri. Jussieu, however, has (*in Annales du Museum, v.* 5 *p.* 224.) stated sufficient reasons for excluding it from that order, but has not attempted to determine its affinity. I have ventured to place it in Proteaceæ, from the structure of its fruit, stamina and calyx, and the only circumstance in which it differs from them, consists in its having (according to Labillardiere) four barren stamina; but even these occupy the place of the glands or scales usually found in the order, and the resemblance they bear to stamina in this genus, may assist in explaining their nature in all: nor does their being in most cases secreting organs render this view of their origin improbable; for the function of secretion, which, as it is far from universal, must be considered as only of secondary importance in assisting impregnation, is more frequently accomplished by the modification of some of the usual parts of the flower than by the production of an additional organ.

Cenarrhenes *nitida.* *Labill. Nov. Holl.* 1. *p.* 36.* *t.* 50.

Hab. In Insulæ Diemen plagis australioribus. *Labillardiere.* (v. s. cum fructu sed floribus delapsis in Herb. D. Lambert.)

20. PERSOONIA. *Smith in Linn. Trans.* iv. *Gært. Carp.* 3. *p.* 218. *t.* 220. Pentadactylon. *Gært. l. c. p.* 219. *t.* 220. Linkia. *Cav. Ic.* 4.

Char. Gen. *Calyx* tetraphyllus, regularis, foliolis medio staminiferis, suprà recurvis, deciduus. *Stamina* exserta. *Glandulæ*

dulæ quatuor hypogynæ. *Ovarium* pedicellatum, 1-loculare, 1—2-spermum. *Stigma* obtusum. *Drupa* baccata; *Nuce* 1—2-loculari!

Habitus. Frutices v. Arbusculæ, *cortice in quibusdam scarioso-lamelloso.* Folia *sparsa, integerrima, sæpiùs plana.* Pedunculi *axillares, solitarii, ebracteati, v. racemosi, unibracteati.* Flores *flavi.* Pedicellus *ovarii in quibusdam articulatus!* Cotyledones *sæpiùs plures!*

*1. P. *teretifolia,* foliis filiformibus exsulsis, pedunculis unifloris solitariis, antheris acuminatis, stylis ovario brevioribus.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*2. P. *microcarpa,* foliis filiformibus canaliculatis, pedunculis solitariis geminis ternisve, antheris muticis, stylis ovario aliquoties longioribus, stigmate cernuo.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis paludosis. (ubi v. v.)

*3. P. *pinifolia,* foliis filiformibus laxis, spicâ foliatâ elongatâ pyramidali: foliis floralibus abbreviatis, ovario monospermo.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis et ad ripas rivulorum. (ubi v. v.)

4. P. *juniperina,* foliis subulatis strictis pungentibus, pedunculis axillaribus sparsis spicisve foliatis abbreviatis, ovariis dispermis glabris.

Persoonia juniperina. *Labill. Nov. Holl.* 1. *p.* 33.* *tab.* 45.

Hab. In Insulâ Diemen: et Novæ Hollandiæ orâ australi, prope Port Phillip: in ericetis aridis lateribusque collium. (ubi v. v.)

*5. P. *hir-*

5. P. *hirsuta*, foliis linearibus hirsutis scabris margine recurvis, pedunculis axillaribus, ovariis monospermis sericeis.
Persoonia hirsuta. *Pers. Syn.* 1. *p.* 118.
HAB. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis humidis. (ubi v. v.)

*6. P. *mollis*, foliis longo-lanceolatis villosis subtùs mollissimis, calycibus barbatis, ovariis dispermis glabris.
HAB. In Novæ Hollandiæ orâ orientali; prope Port Jackson: ad ripas arenosas fluviorum. (ubi v. v.)

7. P. *linearis*, foliis angusto-linearibus elongatis glabris, pedunculis erectis calycibusque pubescentibus, pedicello ovarii inarticulato, caule arborescenti: cortice lævi.
Persoonia linearis. *And. Repos.* 77. *Vent. Malmais.* 32. *Sims. Bot. Mag.* 760. *Pers. Syn.* 1. *p.* 118.
HAB. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis et collibus. (ubi v. v.)

*8. P. *lucida*, foliis lanceolato-linearibus elongatis glabris, pedunculis erectis calycibusque pubescentibus, pedicello ovârii inarticulato, caule arborescenti: cortice scarioso-lamelloso.
HAB. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in montosis ad ripas fluviorum. *D. Fer. Bauer.* (v. s.)

9. P. *virgata*, foliis linearibus oblongo-linearibusve sparsis verticalibus glaberrimis margine lævibus, pedunculis erectis calycibusque glabris, caule arborescenti: cortice lævi.
HAB. In Novæ Hollandiæ orâ orientali; prope Sandy Cape: in arenosis prope littora. (ubi v. v.)

 *10. P. *flexi-*

*10. P. *flexifolia*, foliis lanceolato-linearibus mucronatis confertis basi tortis utrinque lævibus punctis crystallinis micantibus; marginibus scabris, calycibus glabris, caule fruticoso.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad latera saxosa collium. (ubi v. v.)

*11. P. *scabra*, foliis lineari-lanceolatis mucronatis utrinque scabris punctis crystallinis aliisque minutissimis opacis conspersis, calycibus pubescentibus.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*12. P. *spathulata*, foliis lanceolato-spathulatis mucronatis concaviusculis utrinque scaberrimis punctis crystallinis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*13. P. *nutans*, foliis linearibus lævibus, pedunculis axillaribus recurvis calycibusque glabris.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in sylvis solo arenoso, ad radices montium. (ubi v. v.)

*14. P. *falcata*, foliis elongato-lanceolatis basi attenuatis subpetiolatis falcatis aversis coriaceis, antheris acuminatis, caule arborescenti: cortice lamelloso.

Hab. In Novæ Hollandiæ orâ orientali; Endeavour River: Jos. Banks, bart.: septentrionali, Carpentaria; prope littora. (ubi v. v. cum fruct. matur. flor. delaps.)

15. P. *lanceolata*, foliis lanceolatis ellipticisve mucronatis glabris

lævibus,

lævibus, pedunculis axillaribus unifloris, calycibus pube adpressâ subsericeis, pedicello ovarii inarticulato.

Persoonia lanceolata. *And. Repos.* 74. *Pers. Syn.* 1. *p.* 118.

β. Persoonia latifolia. *And. Repos.* 280?

HAB. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis ericetisque, prope littora. (ubi v. v.)

16. P. *salicina*, foliis lanceolato-oblongis inæquilateralibus aversis, racemis lateralibus pedunculisve axillaribus unifloris, calycibus glabriusculis, caule arborescenti: cortice scarioso-lamelloso.

Linkia lævis. *Cavan. Ic.* 4. *p.* 61. *t.* 389? an varietas P. lanceolatæ?

Persoonia salicina. *Pers. Syn.* 1. *p.* 118.

HAB. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis collibus et sylvis. (ubi v. v.)

17. P. *ferruginea*, foliis ellipticis æquilateralibus venosis adversis, pedunculis axillaribus multifloris calycibusque ferrugineo-tomentosis, caule erecto.

Persoonia laurina. *Pers. Syn.* 1. *p.* 118.

Persoonia ferruginea. *Smith. Exot. Bot.* 2. *p.* 47. *t.* 83.

HAB. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis. (ubi v. v.)

*18. P. *prostrata*, foliis ovalibus obtusis margine pubescentibus, pedunculis axillaribus uni-v. paucifloris, caule procumbente.

HAB. In Novæ Hollandiæ orâ orientali; prope Sandy Cape; in arenosis prope littora. (ubi v. v. cum fruct. matur. flor. delaps.)

*19. P. *elliptica*, foliis ellipticis venosis, racemis lateralibus, calycibus glabris, pedicello ovarii articulato.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad latera saxosa collium. (ubi v. v.)

*20. P. *articulata*, foliis elongato-lanceolatis æquilateralibus glabris, racemis lateralibus pedunculisve unifloris, calycibus glabriusculis, ovarii pedicelli articulo inferiore glandulas hypogynas æquante.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

21. P. *longifolia*, foliis elongato-linearibus falcatis, racemis lateralibus pedunculisve unifloris, calycibus pube adpressâ tectis, ovarii pedicelli articulo inferiore glandulis hypogynis longiore.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

22. P. *graminea*, foliis rameis linearibus longissimis margine recurvis, racemis secundis multifloris, calycibus glabris, caule suffruticoso abbreviato.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land; ad ripas arenosas stagnorum. (ubi v. v.)

21. BRABEIUM.

Linn. Gen. Pl. 1. *n.* 85. *Mant.* 168. *ed. Schreb. n.* 1580.

Char. Gen. *Calyx* tetraphyllus, regularis. *Stamina* basi calycis inserta. *Vaginula* hypogyna. *Ovarium* sessile. *Stigma* verticale. *Drupa* exsucca, monosperma, putamine osseo.

Habitus.

Habitus. Arbor. Folia (Theophrasti,) *verticillata, serrato-dentata.* Spicæ *axillares, floribus fasciculatis, ternis plurisbusve, bracteâ communi subtensis, plerisque masculis pistillo imperfecto.*

Brabeium *stellatifolium.*

Arbor hexaphylla æthiopica, foliis circa caulem ad intervalla senis. *Pluk. Alm.* 47. *t.* 265. *f.* 3.

Amygdalus æthiopica fructu holosericeo. *Breyn. cent.* 1. *t.* 1.

Brabejum. *Hort. Cliff.* 36. *Roy. Lugd. Bat.* 400.

Brabejum stellatifolium. *Linn. Sp. Pl. ed.* i. *p.* 121. *ed.* ii. *p.* 177. *Mant. p.* 332.*

Brabyla. *Mant. p.* 137.*

Brabeium stellulifolium. *Linn. Syst. Veg.* xiii. *p.* 764. *Houtt. Nat. Hist. par.* 2. *t.* 6. *p.* 424. *tab.* 37. *ed. Germ. t.* 4. *p.* 647. *t.* 37. *f.* 1. *Lam. Encyc. Botan.* 1. *p.* 459*? *Illust. Gen. tab.* 847. *Willd. Sp. Pl.* 4. *p.* 972.

Brabeium stellatum. *Thunb. Prod.* 31.

Hab. In Africâ Australi, prope Prom. B. Spei. (v. s. in Herb. Banks. Lambert.)

22. GUEVINA.

Molin. Chil. 198. *Juss. Gen.* 424.

Quadria. *Gen. Flor. Peruv. et Chil.* 16. *tab.* 33. *Gært. Carp.* 3. *p.* 220. *tab.* 220.

Char. Gen. *Calyx* tetraphyllus, irregularis, foliolis tribus revolutis, quarto erecto. *Antheræ* apicibus concavis calycis immersæ. *Glandulæ* duæ hypogynæ, anticæ. *Ovarium* dispermum. *Stigma* obliquum. *Drupa* putamine osseo, monospermo.

Habitus. Arbor. Folia *alterna, pinnata.* Racemi *axillares, floribus geminis, pedicellatis, paribus unibracteatis.* Calyx *tomentosus, deciduus.* Drupa *parùm carnosa, nucleo amygdalino.*

Guevina

Guevina Avellana. *Molin. Chil.* 198.*

Nebu subrotundo fraxini folio. *Feuill.* 3. *p.* 46. *t.* 33.

Quadria heterophylla. *Flor. Peruv. et Chil.* 1. *p.* 63. *t.* 99. *f.* b.

Hab. In sylvis et ad radices montium Chilensium. (v. s. in Herb. Banks. a Dombey.)

23. BELLENDENA.

Char. Gen. *Calyx* tetraphyllus, regularis, patens. *Stamina* hypogyna. *Glandulæ* nullæ hypogynæ. *Ovarium* dispermum. *Stigma* simplex. *Samara?* aptera, 1—2-sperma.

Habitus. Frutex *glaberrimus.* Folia *sparsa, plana, apice trifida.* Spica *racemosa, terminalis; floribus sparsis, rarò geminatis.* Calyx *albus citò deciduus.* Ovarium *cum pedicello suo articulatum.* Samara *colorata margine altero sulcato.*

This genus is named in honour of John Bellenden Ker, esq. whose botanical merits are established by an excellent Essay on *Ensatæ*, published in the Annals of Botany, and by his elaborate disquisitions on the Genera of that and other monocotyledonous families, in the latter volumes of the Botanical Magazine.

Bellendena montana.

Hab. In Insulâ Diemen: in summis montibus. (ubi v. v.)

24. ANADENIA.

Char. Gen. *Calyx* tetraphyllus, apicibus concavis staminiferis. *Antheræ* immersæ. *Glandulæ* nullæ hypogynæ. *Ovarium* dispermum. *Stigma* conicum. *Folliculus* unilocularis, abortione monospermus. *Semen* apterum.

Habitus. Frutices. (*Grevilleis affines:*) *pube dum adsit medio affixâ.* Folia *pinnatifida v. lobata, circumscriptione cuneiformia.* Spicæ

Spicæ *terminales, v. laterales, floribus geminatis, paribus unibracteatis, summis quandoque præcocioribus!*

Etym. α priv. et αδην glandula.

*1. A. *pulchella*, foliis pinnatifidis pilosiusculis: lobis cuneiformibus apice trifidis v. inciso-pinnatifidis, folliculis viscidis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*2. A. *trifida*, foliis cuneiformibus triplinervibus aveniis trifidis (unguicularibus) subtùs argenteis: lobis integerrimis lateralibusve 2—3-dentatis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in sylvis solo arenoso. (ubi v. v.)

Obs. Forte generis distincti, ob calycem irregularem, stigma paullò diversum, et folliculum ligneum bipartibilem.

*3. A. *ilicifolia*, foliis cuneiformibus (uncialibus) venosis subtùs argenteis basi attenuatis extra medium pinnatifido-incisis.

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: in arenosis prope littora. (ubi v. v. floribus inexpansis absque fructu.)

25. GREVILLEA.

Char. Gen. *Calyx* irregularis foliolis laciniisve secundis, apicibus cavis staminiferis. *Antheræ* immersæ. *Glandula* unica hypogyna, dimidiata. *Ovarium* dispermum. *Stigma* obliquum, depressum (rarò subverticale, conicum). *Folliculus* unilocularis, dispermus, loculo centrali. *Semina* marginata v. apice brevissimè alata.

Habitus. Frutices *rarò* Arbores, *pube dum adsit medio affixâ.* Folia *alterna, indivisa v. pinnatifida.* Spicæ *modò elongatæ racemosæ, modò abbreviatæ corymbosæ v. fasciculiformes, involucro nullo,*

nullo, pedicellis geminatis, rarò pluribus fasciculisve unibracteatis. Calyces *sæpissimè rubicundi, nunc flavi; in quibusdam obliquè inserti.* Folliculi *vel coriacei, ovati, stylo toto coronati; seminibus ovalibus angustissimè marginatis et apice brevissimè alatis: lignei, vel subrotundi, pseudo-bivalves basi tantum styli mucronati; seminibus undique alatis.*

This extensive genus, of which a few of the least remarkable species have been already published as Embothriums by Dr. Smith, Cavanilles, and others, I have dedicated to the right honourable Charles Francis Greville, one of the Vice-Presidents of the Royal Society; a gentleman eminently distinguished for his acquirements in natural history, and to whom the botanists of this country are indebted for the introduction and successful cultivation of many rare and interesting plants.

Grevillea is probably the most extensive genus of Proteaceæ in New Holland, and admits of division into several very natural sections, most of which are readily distinguishable by more than one character, existing either in the parts of fructification or in habit; notwithstanding which, I have not ventured to separate them into distinct genera, as I probably should have done, had I been acquainted with fewer species; but have given to each section a proper name, a practice that may perhaps be advantageously adopted in all large genera, where they are thus capable of natural subdivision. It must be unnecessary to add that proper names can in this manner be given only where the sections are perfectly natural, and not in those cases where genera have been subdivided from single characters, and those too of but little importance, as in Thunberg's division of Protea, from the form and division of the leaves; to which may be opposed the

the masterly subdivision of the same genus previously given by Linneus in the Mantissa, whose sections, though apparently depending on single characters, are evidently formed from a contemplation of the whole structure, as far as it was then understood; and it is remarkable that, with the exception of the first species, with whose real structure he was necessarily unacquainted, the rest are arranged, and even divided into sections, in most cases corresponding with the genera proposed in the present essay.

† Folliculi *coriacei, stylo toto stigmateque depresso coronati.* Semina *ovalia, angustissimè marginata, apiceque brevissimè alata.*

A. LYSSOSTYLIS.

Folia *omnia integerrima* (*in plerisque marginibus refractis v. replicatis pseudo-3-nervia*). Flores *fasciculati v. in racemo abbreviato.* Stylus *glaber.* Folliculus *ecostatus.*

1. G. *punicea*, foliis elliptico-oblongis basi subattenuatis marginibus refractis, ramulis floriferis racemoque abbreviato recurvis, pistillis uncialibus, barbâ interiore calycis oblongâ dimidium inferiorem unguium æquante.

Embothrium sericeum *β. Smith. New Holl.* 27. *t.* 9. *f.* 5. *β.*

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis subhumidis. (ubi v. v.)

*2. G. *dubia*, foliis ellipticis marginibus refractis, ramis ramulisque tomentosis, floriferis racemoque abbreviato recurvis, pistillis unciâ brevioribus.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in saxosis subhumidis prope littora. (ubi v. v.)

Obs. Nimis affinis præcedenti.

3. G. *sericea*, foliis ellipticis oblongisve obtusis mucronatis marginibus refractis, ramulis floriferis erectis, racemis abbreviatis recurvis, pistillis semuncialibus, barbâ interiori calycis dimidio inferiore unguium breviore.

Embothrium sericeum. *Smith. New Holl.* 25. *t.* 9. *f.* 1, 2, 3, 4. *Willd. Sp. Pl.* 1. *p.* 539. *And. Repos.* 100. *Sims. in Bot. Mag.* 862.

Embothrium cytisoides. *Cav. Ic.* 4. *p.* 60. *t.* 386. *f.* 2.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in saxosis prope littora marina et ad rivulorum ripas. (ubi v. v.)

4. G. *linearis*, foliis lineari-lanceolatis acutis mucronatis marginibus refractis, racemis abbreviatis erectiusculis, stylis apice glaberrimis.

Embothrium linearifolium. *Cavan. Ic.* 4. *p.* 59. *t.* 386. *f.* 1.

Embothrium lineare. *And. Repos.* 272.

Embothrium sericeum *γ*. *Smith. New Holl.* 27. *t.* 9. *f.* 6.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in saxosis præsertim prope littora. (ubi v. v.)

*5. G. *stricta*, foliis lanceolato-linearibus acutis mucronatis marginibus refractis costâque denticulato-scabris, stylis apice sericeis.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: ad ripas saxosas fluviorum. (ubi v. v.)

*6. G. *riparia*, foliis elongato-linearibus marginibus refractis costâque lævibus, stylis apice glaberrimis, pistillis quadrilinearibus: pedicello ovarium superante, barbâ interiori calycis densâ.

Hab.

Hab. In Novæ Hollandiæ orâ orientali ; prope Port Jackson : ad ripas fluviorum. (ubi v. v.)

*7. G. *parviflora*, foliis subulato-linearibus marginibus refractis costâque lævibus, ramulis glabriusculis, calycibus ferrugineis barbâ interiori obsoletâ, pistillis bilinearibus : pedicello ovarium vix æquante.

Hab. In Novæ Hollandiæ orâ orientali ; prope Port Jackson : in fruticetis a littore remotis. (ubi v. v.)

*8. G. *juniperina*, foliis subulatis fasciculatis divaricatis marginibus refractis, ramulis villosis teretiusculis, pistillis semuncialibus pedunculo partiali quadruplò longioribus.

Hab. In Novæ Hollandiæ orâ orientali ; prope Port Jackson : in ericetis rariùs. *D. G. Caley, & A. Gordon.* (v. s.)

*9. G. *australis*, foliis lanceolato-subulatis unciâ brevioribus margine subrecurvis, suprà pube deciduâ conspersis subtùs sericeis, ramis ramulisque tomentosis teretibus.

Hab. In Insulâ Diemen ; plagis australioribus : ad fluviorum ripas. (v. v. absque flor. v. fruct.)

*10. G. *tenuifolia*, foliis subulatis margine revolutis unciâ brevioribus, fasciculis sessilibus, pistillis bilinearibus.

Hab. In Insulâ Diemen ; prope Port Dalrymple : ad ripas saxosas fluviorum. (ubi v. v.)

*11. G. *pauciflora*, foliis lineari-oblongis planiusculis obtusis mucronulatis suprà lævibus subtùs subsericeis : inferioribus glabriusculis, fasciculis 2-4-floris erectis, calycibus nudiusculis pistillum subæquantibus.

 Hab.

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: in depressis apricis prope littora. (ubi v. v.)

*12. G. *aspera*, foliis lineari-oblongis obtusis mucronulatis suprà punctato-asperis subtùs argenteis, racemis abbreviatis recurvis, stylis brevissimis, stigmate cochleariformi.

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: in ericetis aridis. (v. v. flor. delaps. fruct. matur.)

*13. G. *concinna*, foliis linearibus margine revolutis lævibus erectis, racemis recurvis secundis multifloris, ovariis lanatis, stylis glaberrimis calyce subsericeo duplò longioribus.

Obs. A reliquis sectionis facie differt.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in sterilibus prope littora marina. (ubi v. v.)

† B. PTYCHOCARPA.

Folia *omnia integerrima.* Flores *fasciculati v. in racemo abbreviato, floribus superioribus præcocioribus!* Stylus *hirsutus v. tomentosus.* Ovarium *subsessile.* Folliculus *costatus!*

*14. G. *arenaria*, foliis oblongis obtusis mucronulatis, racemis recurvis paucifloris: pistillis tomentosis.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: ad ripas arenosas fluviorum. (ubi v. v.)

*15. G. *montana*, foliis lanceolatis acutis suprà læviusculis subtùs sericeis, floribus geminatis, pedunculis glabris calyces nudiusculos subæquantibus, pistillis hirsutis, tomento ramulorum arctè adpresso.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in montosis. (v. s.)

*16. G. *acu-*

*16. G. *acuminata*, foliis lanceolatis subacuminatis mucronatis suprà punctato-scabris subtùs cinereo-tomentosis, racemis paucifloris porrectis recurvisve, pistillis hirsutis, calycibus demùm glabriusculis, ramulis pubescentibus.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in montosis. (v. s.)

4. G. *cinerea*, foliis ellipticis obovatisve mucronatis suprà scabriusculis subtùs cinereo-tomentosis, racemis paucifloris recurvis, pistillis hirsutis, calycibus pedunculisque lanatis.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in montosis ad ripas saxosas fluviorum. (ubi v. v.)

*18. G. *mucronulata*, foliis obovatis obtusis mucronulatis suprà scabris nitentibus subtùs parùm sericeis, racemis abbreviatis, pistillis hirsutis, calycibus pilosiusculis pube adpressâ.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis. (ubi v. v.)

*19. G. *Baueri*, foliis oblongis obtusis mucronulatis utrinque glabris lævibus, racemis abbreviatis, pistillis hirsutis, calycibus pedunculisque glaberrimis.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in depressis a littore remotis. (ubi v. v.)

† C. ERIOSTYLIS.

Folia *omnia integerrima.* Flores *fasciculati, subumbellati.* Pistillum *lanatum, pedicellatum.* Folliculus *ecostatus.*

*20. G. *occidentalis*, foliis lanceolatis suprà punctatis scabris subtùs sericeis, fasciculis axillaribus terminalibusque, calycibus

cibus utrinque stylisque lanâ patulâ cinereis, stigmate mutico.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in sylvis solo sterili. (ubi v. v.)

*21. G. *sphacelata*, foliis oblongis lanceolatisve suprà punctis minutis scabriusculis subtùs sericeis, fasciculis terminalibus, calycibus extùs ferrugineo-tomentosis intùs stylisque cinereo lanatis, stigmate mutico.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in saxosis. (ubi v. v.)

*22. G. *phylicoides*, foliis lineari-lanceolatis: suprà punctato-scabris superioribus villosis; subtùs pubescentibus cinereis, stigmatibus ovalibus appendice duplò longioribus.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in montibus saxosis. (ubi v. v.)

23. G. *buxifolia*, foliis ellipticis suprà punctatis scabris subtùs tomento adpresso cinereis, stigmatibus orbiculatis appendicem recurvum vix æquantibus.

Embothrium buxifolium. *Smith. New. Holl.* 29. *t.* 10. *Willd. Sp. Pl.* 1. *p.* 538. *And. Repos.* 218.

Embothrium genianthum. *Cav. Ic.* 4. *p.* 60. *t.* 387.

Hab. In Novæ Hollandiæ orâ australi; prope Port Jackson: in ericetis saxosis. (ubi v. v.)

† D. PLAGIOPODA.

Folia *integerrima v. divisa.* Racemus *thyrsiformis.* Pedicellus ovarii *accretus apice obliquo pedunculi, cui utrinque foliola duo calycis unum supra alterum inserta !*

*24. G. *Goodii*, foliis integerrimis oblongis undulatis venosis utrinque

utrinque glabris, racemis elongatis pedunculatis, caulibus prostratis.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria, et Arnhem's Land: in depressis arenosis, prope littora. (ubi v. v.)

*25. G. *venusta*, foliis pinnatifidis, v. trifidis passimque indivisis subtùs sericeis, racemis erectis, calycibus glaberrimis, stylis hirsutissimis.

Hab. In Novæ Hollandiæ orâ orientali; prope Cape Townsend: in umbrosis, ad radices montium. (ubi v. v.)

† E. CALOTHYRSUS. (Grevillia strictè sic dicta.)

Racemus *thyrsiformis*. Folia *pinnatifida* (*rarò passim indivisa*).

*26. G. *pungens*, foliis pinnatifidis suprà glabris subtùs argenteis: laciniis subulato-linearibus mucronatis pungentibus, racemis refractis, calycibus pistillisque glaberrimis.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: prope littora. (ubi v. v.)

*27. G. *Dryandri*, foliis pinnatis subtùs sericeis: foliolis elongato-linearibus, racemis pedunculatis porrectis longissimis, calycibus insertione subobliquis pistillisque glaberrimis, caule patulo.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria, Arnhem's Land: prope littora. (ubi v. v.)

*28. G. *aspleniifolia*, foliis elongatis linearibus pinnatifido-incisis integerrimisque subtùs tomentosis, racemis folio ter brevioribus, calycibus pubescentibus, stylis glabris.

Hab.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: rariùs. (v. s. in Herb. Banks.)

*29. G. *Banksii*, foliis pinnatifidis subtùs sericeis: laciniis elongato-lanceolatis, racemis erectis æqualibus, calycibus tomentosis, stylis glabris, ovariis sessilibus.

Hab. In Novæ Hollandiæ orâ orientali; Keppel Bay, Pine Port, &c.: in collibus saxosis. (ubi v. v.)

*30. G. *Chrysodendrum*, foliis pinnatifidis bipinnatifidisque: laciniis angusto-linearibus elongatis, racemis cylindraceis: floribus semiverticillatis, calycibus tomentosis basi persistenti! ovariis subsessilibus, stylis glabris.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: prope littora. (ubi v. v.)

†† CYCLOPTERA.

Folliculi *lignei, subrotundi, basi styli mucronati.* Semina *undique alata.*

*31. G. *heliosperma*, foliis pinnatis subbipinnatisque glabris: pinnis oblongo-linearibus v. oblongis: inferioribus petiolatis, racemis divisis erectis, calycibus pistillisque glaberrimis.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: prope littora. (ubi v. v.)

*32. G. *refracta*, foliis pinnatis passim indivisis: foliolis elongato-linearibus subtùs argenteis, racemis refractis divisis, calycibus sericeis, pistillis glaberrimis.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: prope littora. (ubi v. v.)

*33. G. *ce-*

*33. G. *ceratophylla*, foliis 2-3-fidis indivisisque subtùs nervosis sericeis: laciniis elongato-linearibus, folliculis glaberrimis ovalibus.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: prope littora. (ubi v. v. sine flor.)

*34. G. *mimosoides*, foliis integerrimis ensiformibus planis nervosis ramisque glabris, folliculis obovatis viscidis.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: prope littora. (ubi v. v. sine flor.)

*35. G. *polystachya*, foliis lineari-ensiformibus integerrimis laxis subtùs nervosis sericeis, racemis terminalibus alternis, pistillis semunciâ longioribus, stigmate obliquo concavo papillâ centrali.

Hab. In Novæ Hollandiæ orâ orientali, intra tropicum. (ubi v. v.)

*36. G. *striata*, foliis lineari-ensiformibus integerrimis strictis subtùs multinervibus sericeis, racemis terminalibus alternis, pistillis semunciâ brevioribus, stigmate verticali depresso-conico.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: prope littora. (ubi v. v. sine fructu.)

*37. G. *lorea*, foliis teretibus! pendulis longissimis, stigmate truncato-pyramidato.

Hab. In Novæ Hollandiæ orâ orientali, prope littora; Shoal-water Bay. (ubi v. v. sine fructu.)

*38. G. *gibbosa*, foliis elongato-lanceolatis integerrimis pubescen-

tulis uninervibus venosis, racemis elongatis, stigmate conico, folliculis gibboso-incrassatis.

Hab. In Novæ Hollandiæ orâ orientali, intra tropicum; prope Endeavour River. *J. Banks, bart.* (v. s.)

26. HAKEA.

Schrad. Sert. Hanov. *Cavan. Ic.* 6. *Labill. Nov. Holl.* 1. *p.* 30. *Pers. Syn.* 117. Conchium. *Smith. Linn. Trans.* iv. *p.* 215. *Vent. Malmais.* 110. *Gært. Carp.* 3. *p.* 216.

Char. Gen. *Calyx* tetraphyllus, irregularis, foliolis secundis. *Stamina* apicibus concavis calycis immersa. *Glandula* hypogyna unica, dimidiata, (rarò biloba). *Ovarium* pedicellatum, dispermum. *Stigma* subobliquum, e basi dilatatâ conico-mucronatum. *Folliculus* unilocularis, ligneus, loculo excentrico, pseudobivalvis. *Semina* alâ apicis nucleo longiore.

Habitus. Frutices *rigidi, quandoque* Arbores *mediocres; pube dum adsit medio affixâ.* Folia *sparsa, in variis varia, nunc in eodem frutice diversiformia.* Fasciculi *v.* Racemuli, *sæpiùs axillares, in plerisque involucrati, squamis imbricatis, scariosis, caducis, rudimenta ramulorum quandoque simul includentibus, ideoque potiùs pro gemmâ habendis, sed genus, unicâ exceptâ specie, a confinibus, optimè distinguentibus, aliis notis in quibusdam vacillantibus.* Pedicelli *colorati, in racemosis geminati, paribus unibracteatis.* Flores *parvi, albi v. ochroleuci.* Pistillum *glaberrimum, stylo subdeciduo.* Capsula *parietibus incrassatis.* Semina *nigra, rarò cinerea.*

† *Folia omnia filiformia.*

A. *Capsulæ juxta apicem ecalcaratæ.*

1. H. *pugioniformis,* foliis filiformibus indivisis glabris, calycibus sericeis hirsutisve, capsulis lanceolatis acuminatis rectis utrinque infra medium transversim cristatis.

α. Calyces

α. Calyces sericei.

Banksia teretifolia. *Salisb. Prod.* 51.

Hakea glabra. *Schrad. Sert. Hanov.* 27. *t.* 17.

Hakea pugioniformis. *Cavan. Anal. de Hist. Natur.* 1. *p.* 213.* *Ic.* 6. *p.* 24.* *tab.* 533.

Conchium pugioniforme. *Smith. Linn. Trans.* 9. *p.* 122.*

Conchium longifolium. *Smith. Linn. Trans.* 9. *p.* 121.*

Lambertia teretifolia. *Gært. Carp.* 3. *p.* 213. *t.* 217.

β. Calyces hirsuti. Ramuli ultimi tomentosi.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis aridis, collibusque saxosis. *β* fortè distincta species. In Insulâ Diemen. (ubi v. v.)

*2. H. *rugosa*, foliis filiformibus indivisis glabris fructu parùm longioribus, capsulis obovatis curvatis refractis utrinque cristatis rugosis; acumine subulato lævi adscendenti, caule diffuso.

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: in campis sterilibus prope littora. (ubi v. v. absque flor.)

*3. H. *epiglottis*, foliis filiformibus indivisis glabris fructu duplò longioribus, capsulis curvatis refractis utrinque rugosis ecristatis: mucrone adscendenti subulato carinato, seminum alâ obovatâ, caule erecto.

Hakea epiglottis. *Labill. Nov. Holl.* 1. *p.* 30. *tab.* 40.

Conchium teretifolium. *Gært. Carp.* 3. *p.* 217. *t.* 219.

Hab. In Insulâ Diemen; ad fluviorum rivulorumque ripas. (ubi v. v.)

*4. H. *nodosa*, foliis filiformibus indivisis compressiusculis, cap-

 sulis

sulis gibbosis obtusis nodosis seminumque alâ obovatis, calycibus glabris, pedunculis pubescentibus.

Hab. In Novæ Hollandiæ orâ australi, prope Port Phillip; ad latera montium. (ubi v. v.)

Obs. Sequenti nimis affinis, an species distincta?

*5. H. *flexilis*, foliis filiformibus indivisis parùm compressis, capsulis ellipticis acutiusculis modicè convexis lævibus.

Hab. In Novæ Hollandiæ orâ australi, prope Port Phillip; ad latera montium. (ubi v. v.)

*6. H. *leucoptera*, foliis teretibus indivisis fructu duplò longioribus, ramis erectis virgatis subflexuosis, capsulis ovatis infrà gibbosis suprà compressis, seminibus albo-cinereis!

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: ad margines sylvarum prope radices montium. (ubi v. v. sine flor.)

*7. H. *obliqua*, foliis teretibus indivisis, ramis tomentosis, glandulâ hypogynâ adnatâ apice obliquo pedunculi, calycibus sericeis, capsulis gibbosis subnodosis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis aridis. (ubi v. v.)

*8. H. *sulcata*, foliis filiformibus indivisis undique sulcatis divaricatis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis aridis. (ubi v. v. seu flor. caps. immat.)

† B. *Capsulæ juxta apicem bicalcaratæ.*

*9. H. *lissosperma*, foliis filiformibus indivisis undique exsulcis

glabris

glabris fructu duplò longioribus, capsulis gibbosis intùs lævibus: calcaribus brevissimis, seminis alâ obovatâ: nucleo lævi basi immarginato.

Hab. In Insulæ Diemen montibus australioribus; inter fluvia Derwent et Huon. (ubi v. v. sine flor.)

10. H. *gibbosa*, foliis filiformibus indivisis subtùs basi obsoletissimè sulcatis ramisque subpubescentibus, ramulis pedunculisque hirsutis, calycibus glabriusculis, capsulis gibbosis intùs lacunosis seminis alâ semiellipticâ, nucleo lacunoso basi marginato.

Banksia gibbosa. *Smith in White's Voy.* 224. *t.* 22. *f.* 2. *Willd. Sp. Pl.* 1. *p.* 536.

Banksia pinifolia. *Salisb. Prod.* 51.

Hakea pubescens. *Schrad. Sert. Hanov.* 27.

Hakea gibbosa. *Cavan. Anal. de Hist. Nat.* 1. *p.* 214.* *Ic.* 6. *p.* 24.* *t.* 534.

Conchium gibbosum. *Smith in Linn. Trans.* 9. *p.* 119.*

Conchium sphæroideum. *Smith in Linn. Trans.* 9. *p.* 120*?

Conchium cornutum. *Gært. Carp.* 3. *p.* 216. *t.* 219.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis. (ubi v. v.)

Obs. Calyces non penitùs glabri, sed pilis paucis longiusculis decumbentibus, sæpiùs deciduis, conspersi.

11. H. *acicularis*, foliis filiformibus indivisis glabris subtùs infra medium obsoletè sulcatis longitudine fructûs, ramulis ultimis subsericeis, pedunculis hirsutis calyces glaberrimos subæquantibus, capsulis gibbosis subrugosis intùs lacunosis.

Banksia tenuifolia. *Salisb. Prod.* 51.

Hakea sericea. *Schrad. Sert. Hanov.* 27.

Conchium

Conchium aciculare. *Vent. Malm. t.* 111. *Smith in Linn. Trans.* 9. *p.* 121.

β. Conchium compressum. *Smith in Linn. Trans.* 9. *p.* 121.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis saxosis. (ubi v. v.)

*12. H. *vittata*, foliis filiformibus indivisis exsulcis glabris fructu duplò longioribus, capsulis ovatis convexiusculis æquilateralibus basi citiùs dehiscentibus intùs lacunosis, seminis alâ obovatâ, ramulis tomentosis.

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: in campis sterilibus, prope littora. (ubi v. v. sine flor.)

*13. H. *cycloptera*, foliis filiformibus indivisis fructu duplò longioribus ramulisque glaberrimis, capsulis gibbosis intùs lacunosis, seminibus utrinque alatis; alâ inferiore nucleum subæquante!

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: in campis prope littora. (ubi v. v. sine flor.)

*14. H. *suaveolens*, foliis filiformibus pinnatifidis passimque indivisis suprà sulcatis, floribus racemosis glabris: rachi tomentosâ, capsulis gibbosis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in saxosis prope littora. (ubi v. v.)

†† *Folia pleraque filiformia, aliqua plana.*

*15. H. *microcarpa*, foliis integerrimis glabris: rameis teretibus; infimis planis, calycibus pedunculisque glaberrimis, capsulis bicalcaratis umbellatis folio multoties brevioribus.

Hab. In Insulâ Diemen; ad ripas saxosas fluviorum. (ubi v. v.)

16. H. *tri-*

16. H. *trifurcata*, foliis filiformibus 2-3-fidis indivisisve subtùs sulcatis: passim planis ovalibus integerrimis, calycibus hirsutis, capsulis compressis ecalcaratis.

Conchium trifurcatum. *Smith in Linn. Trans.* 9. *p.* 122.*

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis sterilibus. (ubi v. v.)

17. H. *varia*, foliis superioribus filiformibus divisis simplicibusque: inferioribus planis pinnatifidis laciniis linearibus subulatisve, capsulis bicalcaratis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis sterilibus. (ubi v. v. sine flor.)

††† *Folia omnia plana.*

A. *Folia aliqua v. omnia dentata v. incisa.*

*18. H. *attenuata*, foliis cuneatis apice dentatis pinnatifidisve: passim lanceolatis integerrimis basi attenuatis, capsulis bicalcaratis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v. sine flor.)

*19. H. *linearis*, foliis lanceolato-linearibus spinuloso-paucidentatis integerrimisque aveniis impunctatis, ramulis pedunculoque communi glabris, fasciculis terminalibus axillaribusque, capsulis bicalcaratis compressiusculis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land; in campis sterilibus. (ubi v. v.)

*20. H. *florida*, foliis angusto-lanceolatis spinuloso-dentatis, minutissimè punctatis marginibus scabriusculis, ramulis pedunculoque communi brevissimo pubescentibus, capsulis bicalcaratis convexiusculis.

Hab.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad latera collium. (ubi v. v.)

21. H. *ilicifolia*, foliis circumscriptione ovalibus opacis sinuato-dentatis spinulosis subpetiolatis, ramis tomentosis, capsulis bicalcaratis ovatis gibbosis apice compressis intùs scrobiculatis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus sterilibus. (ubi v. v.)

*22. H. *nitida*, foliis lanceolatis oblongisve basi attenuatis spinuloso-paucidentatis integrisque nitidis subvenosis ramulisque glaberrimis, capsulis bicalcaratis gibbosiusculis intùs læviusculis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v. absque flor.)

*23. H. *amplexicaulis*, foliis sinuato-dentatis nitidis subvenosis: basi dilatatâ cordatâ amplexicauli, caule prostrato, ramis glabris, capsulis ecalcaratis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus sterilibus. (ubi v. v. sine flor.)

*24. H. *prostrata*, foliis angulato-dentatis apice dilatatis cuneatis: basi cordatâ amplexicauli, caule prostrato, ramis pubescentibus, capsulis ecalcaratis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus sterilibus. (ubi v. v.)

25. H. *ceratophylla*, foliis pinnatifidis bipinnatifidisve linearibus planis, calycibus ferrugineo-tomentosis, capsulis ecalcaratis.

Conchium

Conchium ceratophyllum. *Smith. Linn. Trans.* 9. *p.* 124.*

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis collibusque. (ubi v. v.)

*26. H. *undulata,* foliis obovatis trinervibus reticulato-venosis undulatis spinoso-dentatis, capsulis ecalcaratis tumidis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v. sine flor.)

††† B. *Folia omnia integerrima.*

27. H. *oleifolia,* foliis lanceolatis integerrimis uninervibus obsoletè venosis mucronulo spinoso: superioribus pubescentibus, ramulis tomentosis, capsulis terminalibus bicalcaratis gibbosis.

Conchium oleifolium. *Smith. Linn. Trans.* 9. *p.* 124.*

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis et collibus (ubi v. v.)

28. H. *saligna,* foliis elongato-lanceolatis integerrimis uninervibus acutis apiculo sphacelato; omnibus ramulisque glaberrimis, capsulis axillaribus gibbosis: apice compresso utrinque carinato.

Embothrium salignum. *And. Repos. t.* 215.

Conchium salignum. *Smith. Linn. Trans.* 9. *p.* 124.*

Conchium salicifolium. *Gært. Carp.* 3. *p.* 217. *t.* 219.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis elevatioribus. (ubi v. v. sine flor.)

*29. H. *marginata,* foliis lanceolatis integerrimis marginatis uninervibus (unciâ brevioribus) mucrone spinoso: summis pubescentibus, capsulis ecalcaratis acuminatis nitidis subsessilibus.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis elevatioribus. (ubi v. v. sine flor.)

30. H. *ruscifolia*, foliis ellipticis obovatisve petiolatis integerrimis spinoso-cuspidatis suprà punctato-scabris subtùs tomentosis, ramulis hirsutis, capsulis ecalcaratis punctatis scabriusculis.

β. Hakea ruscifolia. *Labill. Nov. Holl.* 1. *p.* 30.* *t.* 39.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad latera collium. (ubi v. v. sine flor.)

*31. H. *cinerea*, foliis lineari-lanceolatis elongatis integerrimis trinervibus obsoletè venosis scabriusculis apiculo sphacelato, ramulis squamisque involucri tomentosis, capsulis lanceolatis acuminatis subcompressis ecalcaratis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in arenosis prope littora. (ubi v. v. sine flor.)

32. H. *dactyloides*, foliis integerrimis triplinervibus venosis obovato-oblongis v. lineari-lanceolatis aversis, ramulis angulatis, pedicellis pilosis, calycibus glabris, capsulis ecalcaratis: cortice verrucoso.

α. Folia obovato-oblonga, passim lanceolata, venis anastomozantibus.

Banksia dactyloides. *Gært. Sem.* 1. *p.* 221. *t.* 47. *f.* 2. *Lam. Illust. Gen.* 1. *p.* 242. *n.* 1279. *t.* 54. *f.* 3. a Gært. mutuat.

Banksia oleæfolia. *Salisb. Prod.* 54.

Hakea dactyloides. *Cavan. Anal. de Hist. Nat.* 1. *p.* 215. *Ic.* 6. *p.* 25. *t.* 535.

Conchium dactyloides. *Vent. Malm. t.* 110. *Smith. Linn. Trans.* 9. *p.* 123.

Conchium

Conchium nervosum. *Gært. Carp.* 3. *p.* 217. *t.* 219.

β. Folia lineari-lanceolata, venis obsoletis.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: *α.* in saxosis prope littora. *β.* ad ripas fluviorum in regione montanâ. (ubi v. v.)

33. H. *elliptica*, foliis integerrimis quinquenervibus reticulato-venosis ellipticis ovalibusve muticis, pedicellis calycibusque glabris, capsulis ecalcaratis acutis gibbosis: cortice nitido.

Conchium ellipticum. *Smith. Linn. Trans.* 9. *p.* 123.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

34. H. *clavata*, foliis integerrimis lingulatis cartilagineo-carnosis mucronatis enervibus, floribus racemosis glabris, capsulis bicalcaratis.

Hakea clavata. *Labill. Nov. Holl.* 1. *p* 31.* *t.* 41.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land; in collibus saxosis prope littora. (ubi v. v.)

*35. H. *arborescens*, foliis integerrimis lingulatis linearibusve obsoletè nervosis muticis, involucris nullis! umbellis pedunculatis, pedicellis calycibusque tomentosis, capsulis ecalcaratis.

Hab. In Novæ Hollandiæ orâ septentrionali; Carpentaria: in apricis prope littora. (ubi v. v.)

Obs. Species unica tropica et gemmis floralibus nudis.

27. LAMBERTIA.

Smith. Linn. Trans. 4. *p.* 214. *Cavan. Ic.* 6. *p.* 31.

Char. Gen. *Calyx* tubulosus, quadrifidus, laciniis spiraliter revolutis.

volutis. *Stamina* laciniis inserta. *Squamulæ* hypogynæ 4, distinctæ v. in vaginulam connatæ. *Ovarium* dispermum. *Stigma* subulatum. *Folliculus* unilocularis, coriaceo-ligneus. *Semina* marginata. *Involucrum* 1—7-florum, imbricatum, deciduum. *Receptaculum* planum, epaleatum.

Habitus. Frutices *pulcherrimi, ramis verticillatis.* Folia *terna, sæpiùs integerrima.* Involucra *terminalia, solitaria, colorata, in plerisque septemflora, rarò uniflora.* Folliculi *subcuneati, apice hinc cuspidati, inde bicornes v. mutici, quandoque echinati.*

*1. L. *uniflora*, involucris unifloris, foliis obovatis mucronatis glabris reticulatis, folliculis hinc cuspidatis inde ecornibus.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: prope littora saxosa sinuum. (ubi v. v.)

*2. L. *inermis*, involucris septemfloris: foliolis interioribus calycis dimidio brevioribus, stylis glabris, folliculis hinc cuspidatis inde ecornibus, foliis oblanceolatis obovatisque muticis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad latera saxosa collium. (ubi v. v.)

3. L. *formosa*, involucris septemfloris: foliolis interioribus calycem æquantibus, stylis pilosis, folliculis hinc cuspidatis inde bicornibus, foliis lineari-lanceolatis cuspidato-mucronatis margine revolutis.

Lambertia formosa. *Smith. Linn. Trans. tab.* 20. *And. Repos.* 69. *Cavan. Anal. de Hist. Nat.* 1. *p.* 233.* *Ic.* 6. *p.* 31.* *t.* 547.

Protea nectarina. *Wendel. Sert. Hanov. fasc.* 4. *p.* 5. *t.* 21.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis saxosis. (v. v.)

4. L? *echi-*

*4. L? *echinata*, foliis linearibus glabris reticulatis apice dilatato-lobato! mucronato, folliculis bicornibus undique echinatis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad latera saxosa collium. (ubi v. v. absque flor.)

28. XYLOMELUM.

Smith. Linn. Trans. 4. *p.* 214.

Char. Gen. *Calyx* tetraphyllus, regularis, foliolis apice revolutis. *Stamina* inserta supra medium foliolorum, iisque recurvatis exserta. *Glandulæ* quatuor hypogynæ. *Ovarium* dispermum. *Stylus* deciduus. *Stigma* verticale, clavatum, obtusum. *Folliculus* incrassato-ligneus, unilocularis, loculo excentrico. *Semina* apice alata.

Habitus. Arbor. Folia *opposita, adulta integerrima, plantæ juvenilis dentata.* Spicæ *axillares, oppositæ, amentaceæ, florum paribus unibracteatis, infimis solùm perfectis, reliquis ovario destitutis stigmateque minore abortientibus.* Folliculus *unicus tantùm maturescens, obpyriformis, tomentosus, crassissimus, intùs suturâ dehiscens, inde siccatione partibilis.*

Xylomelum *pyriforme.*

Banksia pyriformis. *Gært. Sem.* 1. *p.* 220. *t.* 47. *f.* 1. fructus. *Lam. Illust. Gen.* 1. *p.* 242. *n.* 1278. *t.* 54. *f.* 4. a Gært. mutuat. *White. Voy.* 224.

Hakea piriformis. *Cavan. Anal. de Hist. Nat.* 1. *p.* 217.* *Ic.* 6. *p.* 25.* *t.* 536.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis et collibus saxosis. (ubi v. v.)

29. ORITES.

Char. Gen. *Calyx* tetraphyllus, regularis, foliolis apice recurvis. *Stamina* inserta supra medium foliolorum, iisque recurvatis

exserta.

exserta. *Glandulæ* quatuor hypogynæ. *Ovarium* sessile, dispermum. *Stylus* strictus. *Stigma* obtusum, verticale. *Folliculus* coriaceus, unilocularis, loculo subcentrali. *Semina* apice alata.

Habitus. Frutices. Folia *alterna, integerrima v. dentata.* Spicæ *axillares v. terminales, breves, florum paribus unibracteatis omnibus hermaphroditis.*

Etym. Ορειτης monticola. Hi Frutices enim in summis montibus crescunt.

*1. O. *diversifolia*, foliis planis lanceolatis dentatis integerrimisve subtùs tomentosiusculis, folliculis suturâ truncatâ leviterve excisâ.

Hab. In Insulæ Diemen summis montibus. (ubi v. v.)

*2. O. *revoluta*, foliis margine revolutis linearibus integerrimis subtùs incano-tomentosis, folliculis suturâ rotundatâ.

Hab. In Insulæ Diemen summis montibus. (ubi v. v. absque flor.)

30. RHOPALA.

Schreb. Gen. Pl. 144. Roupala. *Aubl. Guian.* 1. *p.* 83. *t.* 32. *Gært. Carp.* 3. *p.* 212. *t.* 217.

Char. Gen. *Calyx* tetraphyllus, regularis, foliolis apice recurvis. *Stamina* supra medium foliorum inserta, iisque recurvatis exserta. *Squamulæ* hypogynæ quatuor, distinctæ v. connatæ. *Ovarium* dispermum. *Stylus* persistens. *Stigma* verticale, clavatum. *Folliculus* unilocularis, ligneo-coriaceus. *Semina* utrinque alata, marginata, nucleo centrali.

Habitus. Arbores. Folia *alterna, rarò verticillata, simplicia integerrima v. dentata, rariùs pinnata v. ternata, in eodem ramo.*

Spicæ

Spicæ *axillares, quandoque terminales, racemosæ, floribus geminis paribus unibracteatis.*

1. R. *montana*, foliis alternis integerrimis ovatis complicatis breviter acuminatis reticulato-venosis racemo axillari brevioribus, pedunculis cum calycibus ovariisque ferrugineo-tomentosis.

Roupala montana. *Aublet. Guian.* 1. *p.* 83. *t.* 32. *Lam. Illust. Gen.* 1. *p.* 243. *t.* 55. *Poiret. Encyc. Botan.* 6. *p.* 316.*

Rupala montana. *Vahl. Symb.* 3. *p.* 20. *Willd. Sp. Pl.* 1. *p.* 536. *Gært. Carp.* 3. *p.* 212. *t.* 217.

Hab. In Americæ Æquinoctialis Guianâ Gallicâ. *Aublet.* (v. s. in Herb. Aubl., nunc in Mus. Banks.)

*2. R. *media*, foliis alternis integerrimis ovatis planis acuminatis petiolum decurrentibus immersè venulosis racemo axillari brevioribus, pedicellis calycibusque pubescentibus, ovariis tomentosis.

Hab. In Americæ æquinoctialis Guianâ Gallicâ. *Iul. V. Rohr.* (v. s. in Herb. Banks.)

3. R. *nitida*, foliis alternis integerrimis ellipticis breviter acuminatis planis racemum axillarem subæquantibus, pedicellis cum calycibus ovariisque glabris.

Ropala nitida. *Rudge, Guian.* 1. *p.* 26. *t.* 39.

Hab. In Americæ æquinoctialis Guianâ Gallicâ. *Jos. Martin.* (v. s. in Herb. Banks. et Lambert.)

*4. R. *moluccana*, foliis alternis integerrimis ellipticis planis venulosis subreticulatis spicâ longioribus, pedicellis calycibusque glabris.

Hab. In Insulis Moluccanis. *D. Christoph. Smith.* (v. s. in Herb. Banks.)

5. R. *co-*

5. R. *cochinchinensis*, foliis alternis ovato-ellipticis breviter acuminatis planis extra medium subserratis racemum axillarem subæquantibus, pedicellis cum calycibus ovariisque glabris.

Helicia cochinchinensis. *Lour. Cochin.* 83.* fide speciminis ab auctore, in Herb. Banks.

Hab. In sylvis Cochinchinæ. *Loureiro. l. c.* (v. s. absque fructu.)

Desc. *Rami* glaberrimi, teretes. *Folia* petiolata, glaberrima, uninervia, 2-2½ uncias longa; quandoque integerrima. *Racemi* solitarii. *Calyx* ante expansionem clavatus, clavâ ovali tubi dimidio breviore et duplò crassiore. *Antheræ* foliolis calycis spiraliter revolutis exsertæ. *Ovarium* brevissimè pedicellatum. *Stylus* filiformis, strictus. *Stigma* clavatum, striatum, oblongum, æquilaterale. *Squamulæ* quatuor hypogynæ, breves, ad medium connatæ, persistentes (à Loureiro post lapsum calycis visæ et uti calyculus quadrifidus descriptæ).

*6. R. *serrata*, foliis alternis latè ellipticis parùm acuminatis serratis racemo axillari longioribus: basi subattenuatâ integerrimâ; paginis discoloribus, pedicellis cum calycibus ovariisque tomentosis.

Hab. In Insulis Moluccanis. *D. Christoph. Smith.* (v. s. in Herb. Banks. et Roxb.)

*7. R. *dentata*, foliis alternis ovato-lanceolatis complicatis dentatis utrinque attenuatis racemo axillari parùm brevioribus: acumine lineari, calycibus ovariisque tomentosis.

Hab. In Americæ æquinoctialis Guianâ Gallicâ. *D. Alex. Anderson.* (v. s. in Herb. Banks.)

8. R. *peruviana*, foliis alternis ovatis serratis lanuginosis subtùs ferrugineis racemo axillari brevioribus.

Embothrium

Embothrium monospernum. *Flor. Peruv. et Chil.* 1. *p.* 63.* *t.* 98.

Hab. In Peruviæ montibus frigidis; prope Panao, vicum ad Portachuelo declivia. *Flor. Peruv. l. c.*

9. R. *diversifolia*, foliis alternis simplicibus pinnatisque venosissimis subtùs pubescentibus racemo axillari brevioribus, folliculis acinaciformibus tomentosis.

Embothrium pinnatum. *Fl. Peruv. et Chil.* 1. *p.* 63*. *t.* 99.

Hab. In Peruviâ; in Muna ruderatis et versuris. *Flor. Peruv. l. c.*

10. R. *sessilifolia*, foliis quaternis subsessilibus cuneato-oblongis subacuminatis integerrimis, racemis terminalibus verticillatis umbellatisve.

Roupala sessilifolia. *Rich. in Act. Soc. Hist. Nat.* 1. *p.* 106. *Poiret. Encyc. Botan.* 6. *p.* 316.* *Willd. Sp. Pl.* 1. *p.* 537.

Ropala hameliæfolia. *Rudge Guian.* 1. *p.* 22.* *t.* 31.

Hab. In Americæ æquinoctialis Guianâ Gallicâ. (v. s. in Herb. Banks. et Lamb.)

31. KNIGHTIA.

Char. Gen. *Calyx* tetraphyllus, regularis, foliolis revolutis. *Stamina* calyci extra medium inserta. *Glandulæ* hypogynæ quatuor. *Ovarium* tetraspermum, sessile. *Stigma* verticale subclavatum. *Folliculus* coriaceus, styligerus, unilocularis. *Semina* apice alata.

Habitus. Arbor *excelsa.* Folia *sparsa, serrata.* Racemi *axillares, floribus geminatis, paribus unibracteatis.* Folliculi *oblongi, tomentosi.*

Genus proximum Rhopalæ, distinctum, Seminibus quaternis, apice solùm alatis.

 This

This genus, which was discovered by Sir Joseph Banks, is with his approbation, named in honour of his friend Thomas Andrew Knight, esq. the author of many valuable essays on Vegetable Physiology, published in the Philosophical Transactions.

For the figure here given I am also indebted to the liberality of the illustrious President of the Royal Society, who has enabled me to complete the account of this remarkable plant, by permitting me to copy Dr. Solander's description, which I was the more desirous to give, as it exhibits a specimen of the accuracy with which subjects of natural history were investigated in that celebrated voyage; of whose important results it is to be lamented so little is known to foreign naturalists, though in this country they have ever been open to the public, and in the most advantageous manner.

Knightia *excelsa.* Tab. II.

Hab. In Novâ Zelandiâ; prope Tolaga et Opuragi. *Josephus Banks* baronetus. (v. s. folliculis vacuis sed impressionibus seminum insignitis.)

Desc. *Arbor* sylvestris, magna, sæpè 80 pedalis. *Caudex* strictissimus. *Rami* erecti, teretes, glabri. *Ramuli* ultimi parùm compressi, villosiusculi. *Coma* pyramidalis. *Folia* numerosa, densè sparsa, erecta, petiolata, lanceolato-oblonga, (v. oblonga,) acutiuscula, profundè serrata, serraturis remotis obtusis, plana, coriacea, rigida: supernè glabra, nitida, lævia, subtùs venosa venulisque numerosissimis subreticulata, villis copiosissimis brevissimis densissimis cinerascentia: 4-5 uncias longa. *Petioli* foliis sexies breviores. *Racemi* sessiles, axillares, simplices, multiflori, ovato-oblongi, foliis duplò breviores, sæpè in ramis nudis collocati, ubi ante decessum foliorum axillares fuerunt, unde primo intuitu videntur quasi lateribus ramorum erumpentes. *Rachis* ruberrima. *Pedicelli* holo-

sericei,

Knightia excelsa.

sericei, ruberrimi, crassiusculi, patentissimi, semunciales, bipartiti, unde biflori. *Calyx* tetraphyllus, foliola ante expansionem arctè in tubum connata, linearia, acutiuscula, sesquiuncialia, coriacea, extùs villosa holosericea, ruberrima, usque ad basin revoluta, æqualia, in medio pauló angustiora. *Glandulæ* quatuor, receptaculo inter basin foliolorum insertæ, e latâ basi acutæ, virescentes, apice rubicundæ, semilineam longæ. *Filamenta* quatuor, unguibus petalorum adnata, suprà medium per spatium lineare libera, filiformia, plana, erecta, rubicunda. *Antheræ* lineares, longitudine foliolorum, supernè parùm incurvæ, flavæ, ipso apice casso lanceolato. *Ovarium* conicum, subangulatum, villosiusculum, rubrum. *Stylus* filiformis, crassiusculus, strictus, persistens, longitudine filamentorum, rubicundus. *Stigma* cylindraceo-angulatum, incrassatum, apice attenuatum, longitudine antherarum, virescens. *Folliculus* oblongo-lanceolatus, stylo persistenti coronatus, coriaceus, crassus, durus, unilocularis, sesquiuncialis v. pauló longior, extùs sericeus. *Hactenus* Solander.

Obs. Pollen triangulare, angulis per lentem pellucentioribus, flavum. *Ovarium* tetraspermum, ovulis apice alatis.

32. EMBOTHRIUM.

Embothrii species. *Forst. Gen.* 15. *t.* 8. *litt. g. et seq.*

Char. Gen. *Calyx* irregularis, hinc longitudinaliter fissus, inde quadrifidus. *Stamina* apicibus concavis calycis immersa. *Glandula* hypogyna unica, semiannularis. *Ovarium* pedicellatum, polyspermum. *Stylus* persistens. *Stigma* verticale, clavatum. *Folliculus* oblongus. *Semina* apice alata.

Habitus. Frutices. *v. Arbusculæ glabræ.* Ramuli *squamis persistentibus gemmarum quandoque obsiti.* Folia *sparsa, integerrima.* Racemi *terminales, corymbosi, paribus pedicellorum, unibrac-*

unibracteatis : Involucro *communi nullo.* Flores *coccinei, glaberrimi.*

1. E. *coccineum,* foliis ovali-oblongis obtusis mucronulatis: paginis discoloribus, ramulis squamatis.

Embothrium coccineum. *Forst. Gen. p.* 16. *t.* 8. *litt. g.—m. Linn. Suppl.* 128. *Forst. Com. Soc. Reg. Goett.* 9. *p.* 24. *Lam. Encyc. Botan.* 2. *p.* 351*. *Illust. Gen.* 1. *p.* 244. *n.* 1284. *t.* 55. *f.* 2. *Willd. Sp. Pl.* 1. *p.* 537.

Hab. In Americâ Australi ad littora freti Magellanici, et in Terra del Fuego. (v. s. in Herb. Banks.)

Obs. Pollen ellipticum, levissimè arcuatum, extremitate utrâque pellucentiore; fovillâ majusculâ globosâ.

2. E. *lanceolatum,* foliis lanceolato-linearibus, ramis esquamatis.†

Embothrium lanceolatum. *Flor. Peruv. et Chil.* 1. *p.* 62. *t.* 96.

Hab. In Chili collibus et montibus altis, inter Conceptionis urbem et Arauci arcem. *Flor. Peruv. l. c.*

33. OREOCALLIS.

Embothrii species. *Flor. Peruv. et Chil.*

Char. Gen. *Calyx* irregularis, hinc longitudinaliter fissus, inde quadridentatus. *Stamina* apicibus concavis calycis immersa. *Glandula* nulla hypogyna. *Ovarium* pedicellatum, polyspermum. *Stigma* obliquum, orbiculato-dilatatum, concaviusculum. *Folliculus* cylindraceus. *Semina* apice alata. *Involucrum* (racemi) nullum.

Habitus. Frutex *speciosus.* Folia *sparsa, integra, paginis discoloribus.* Racemus *thyrsoideus, terminalis, paribus pedicellorum unibracteatis.* Flores *coccinei, glaberrimi.*

Etym. Ορος mons, et καλος formosus.

Oreocallis

Oreocallis *grandiflora.*†

Embothrium grandiflorum. *Lam. Encyc. Botan.* 2. *p.* 354.* *Illust. Gen.* 1. *p.* 244. *n.* 1283. *Willd. Sp. Pl.* 1. *p.* 538.

Embothrium emarginatum. *Flor. Peruv. et Chil. p.* 62. *t.* 95.

Hab. In Peruviæ montibus; in collibus frigidis Provinciæ Tarmæ. *Flor. Peruv. l. c.*

34. TELOPEA.

Embothrii species. *Smith. Salisb.*

Char. Gen. *Calyx* irregularis, hinc longitudinaliter fissus, inde quadrifidus. *Stamina* apicibus concavis calycis immersa. *Glandula* hypogyna unica, subannularis. *Ovarium* polyspermum, pedicellatum. *Stylus* persistens. *Stigma* obliquum, clavatum, convexum. *Folliculus* unilocularis, cylindraceus. *Semina* apice alata, alâ hinc immarginatâ inde vasculosâ nervo obliquè recurrenti. *Involucrum* (racemi v. corymbi) imbricatum, deciduum.

Habitus. Frutices *ramis determinatis.* Folia *sparsa, dentata v. integra.* Racemi *terminales, corymbosi, paribus pedicellorum unibracteatis.* Flores *coccinei.*

Etym. τηλωπος qui e longinquo cernitur, quod de his fruticibus, floribus coccineis speciosis valet.

In this genus, as well as in Lomatia, and perhaps in all those with an indefinite number of seeds, an extremely thin black-brown crust is interposed between the ripe seeds, exactly corresponding with them in size and form, and which is probably the remains of a fluid matter that had separated them in the unripe state.

The most important characters distinguishing this genus from Lomatia, seem to be the single semiannular or nearly circular gland, the cohering calyx, and the vascular wing of the

the seed; for the Involucrum, which at first seems to afford so excellent a distinction, considerably loses its importance in *Telopea truncata*, in which it almost always includes the rudiments of branches, as in Hakea. In natural affinity Telopea approaches much more nearly to Oreocallis, which differs principally in having no gland at the base of the footstalk of its ovarium, and in the want of an Involucrum: the wing of the seed seems (from the figure in the Flora Peruviana) to be in like manner vascular. Embothrium itself, which is also very near akin to Telopea, is distinguishable by its vertical stigma, oval pollen, and naked corymbi.

1. T. *speciosissima*, foliis cuneato-oblongis inciso-dentatis venosis cum ramulis involucrisque glaberrimis.

Embothrium speciosissimum. *Smith New Holl.* 19. *t.* 7. *Sims Bot. Mag.* 1128.

Embothrium speciosum. *Salisb. Parad.* 111.

Embothrium spathulatum. *Cav. Ic.* 4. *p.* 60. *t.* 388. *Gært. Carp.* 3. *p.* 214. *t.* 218.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: locis saxosis, præsertim subumbrosis. (ubi v. v.)

2. T. *truncata*, foliis lanceolato-oblongis integerrimis passimque paucidentatis subtùs ramulisque pubescentulis, involucris extùs tomentosis.

Embothrium truncatum. *Labill. Nov. Holl.* 1. *p.* 32. *t.* 44.

Obs. Ala seminis in hâc apice semper rotundata in præcedenti sæpiùs truncata observavimus.

Hab. In Insulæ Diemen montibus australioribus. (ubi v. v.)

35. LOMATIA.

35. LOMATIA.

Embothrii species. *Smith. Cavan.*

Char. Gen. *Calyx* irregularis, foliolis distinctis secundis. *Stamina* apicibus concavis calycis immersa. *Glandulæ* hypogynæ tres, secundæ. *Ovarium* pedicellatum, polyspermum. *Stylus* persistens. *Stigma* obliquum, dilatatum, subrotundum, planiusculum. *Folliculus* ovali-oblongus. *Semina* apice alata; alâ marginatâ disco evasculoso.

Habitus. Frutices. Folia *alterna, in plerisque divisa, v. dentata, rariùs integerrima, quandoque in eodem frutice varia.* Racemi *terminales, interdum axillares, elongati, laxi, nunc abbreviati, corymbosi, paribus pedicellorum unibracteatis.* Flores *ochroleuci.* Involucrum *nullum.* Seminis *nucleus farinâ sulphureâ conspersus.*

Etym. λωμα, margo, ob seminum alam marginatam.

1. L. *silaifolia*, foliis bipinnatifidis glaberrimis: pinnulis cuneato-linearibus lanceolatisve incisis acutis mucronatis reticulato-venosis, racemis glaberrimis elongatis divisis simplicibusve.

Embothrium silaifolium. *Smith New Holl.* 23. *t.* 8. *Willd. Sp. Pl.* 1. *p.* 537.

Embothrium herbaceum. *Cav. Ic.* 4. *p.* 60. *t.* 388.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis et ericetis. (ubi v. v.)

2. L. *tinctoria*, foliis pinnatifidis bipinnatifidisve (rarò indivisis) glabris: pinnulis linearibus distichis uninervibus subaveniis obtusiusculis mucronulatis, racemis elongatis glabris indivisis.

Embothrium tinctorium. *Labill. Nov. Holl.* 1. *p.* 31. *tab.* 42. *et* 43.

Hab. In Insulæ Diemen campis et collibus. (ubi v. v.)

3. L. *fer-*

3. L. *ferruginea*, foliis bipinnatifidis tomentosis : pinnulis ovatis lanceolatisve, racemo terminali foliis breviore.

Embothrium ferrugineum. *Cavan. Ic.* 4. *p.* 59.* *t.* 385.

Hab. In Americæ Australis "San Carlos de Chiloc in solo aquâ marinâ quandoque inundato." *Cavan. l. c.*

*4. L. *polymorpha*, foliis lineari-lanceolatis integerrimis v. dentatis pinnatifidisve subtùs cum ramulis pedicellisque tomentosis, racemis terminalibus corymbosis, calycibus pilosiusculis, pistillis glaberrimis.

α. *cinerea*. Folia lineari-lanceolata integerrima, marginibus recurvis, subtùs cinereo-tomentosa ; folliculi semunciales.

β. *rufa*. Folia lanceolata v. lineari-lanceolata, incisa v. pinnatifida, passim integerrima, subtùs ferrugineo-tomentosa ; folliculi subunciales.

Embothrii tinctorii var. *Labill. Nov. Holl. l. c.*

Hab. In Insulæ Diemen montibus australioribus. (ubi v. v.)

*5. *ilicifolia*, foliis oblongo-ovatis acutis spinuloso-dentatis reticulatis petiolisque glaberrimis, racemis terminalibus elongatis.

Hab. In Novæ Hollandiæ orâ australi; prope Port Phillip: in campis sterilibus lateribusque montium. (ubi v. v. flor. delaps.)

*6. L. *longifolia*, foliis lineari-lanceolatis elongatis glabris remotè serratis, racemis axillaribus, pedunculis calycibusque pilosiusculis, pistillis glaberrimis.

Embothrium myricoides. *Gært. Carp.* 3. *p.* 215. *t.* 218. ?

Hab. In Novæ Hollandiæ orâ orientali ; prope Port Jackson: ad ripas saxosas fluviorum et rivulorum. (ubi v. v.)

7. L. *den-*

7. L. *dentata*, foliis ovalibus serrato-dentatis petiolisque glaberrimis, racemis lateralibus abbreviatis, calycibus pilosis, ovario tomentoso.†

Embothrium dentatum. *Flor. Peruv. & Chil.* 1. *p.* 62. *t.* 94 a.

HAB. In nemoribus et sylvis regni Chilensis. *Flor. Peruv. l. c.*

8. L. *obliqua*, foliis ovatis serratis glabris, racemis axillaribus, pedicellis calycibusque pilosis, stigmate deciduo.

Embothrium obliquum. *Flor. Peruv. & Chil.* 1. *p.* 63. *t.* 97.

Embothrium hirsutum. *Lam. Encyc. Botan.* 2. *p.* 355. *Illust. Gen.* 1. *p.* 245. *n.* 1286.

HAB. In Conceptionis Chili et Puchacay provinciarum montibus. *Flor. Peruv. l. c.*

OBS. Ala seminis hujus et præcedentis examinanda.

36. STENOCARPUS.

EMBOTHRII species. *Forst. Gen.*

CHAR. GEN. *Calyx* irregularis, foliolis distinctis, secundis. *Stamina* apicibus concavis foliorum immersa. *Glandula* hypogyna unica, semiannularis. *Ovarium* pedicellatum, polyspermum. *Stylus* deciduus. *Stigma* obliquum, orbiculato-dilatatum, planiusculum. *Folliculus* linearis. *Semina* basi alata!

HABITUS. Frutices *glaberrimi.* Folia *alterna, integerrima.* Umbellæ *axillares, v. terminales, pedunculatæ.* Flores *ochroleuci.*

ETYM. στενος angustus, et καρπος fructus.

1. S. *Forsteri*, foliis oblongis obtusis enervibus.

Embothrium umbellatum. *Forst. Gen.* 16. *t.* 8. *f. a.—f. Forst. Aust. n.* 60. *Linn Suppl.* 228. *Lam. Encyc. Botan.* 2. *p.* 352. *Illust. Gen.* 1. *p.* 245. *n.* 1285. *t.* 55. *f.* 1. *Willd. Sp. Pl.* 1. *p.* 538.

 HAB.

Hab. In Novâ Caledoniâ. *J. R. et G. Forster,* (v. s. sine fructu in Herb. Banks. et Lambert.)

*2. S. *salignus,* foliis elongato-lanceolatis basi trinervibus.
Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson ad ripas saxosas fluviorum et rivulorum. (ubi v. v.)

37. BANKSIA.

Linn. fil. Suppl.

Char. Gen. *Calyx* quadripartitus (rarò quadrifidus). *Stamina* apicibus concavis laciniarum immersa. *Squamulæ* hypogynæ quatuor. *Ovarium* biloculare, loculis monospermis. *Folliculus* bilocularis, ligneus: *Dissepimento* libero, bifido. *Amentum* flosculorum paribus tribracteatis!

Habitus. Frutices *v.* Arbores, *vix excelsæ.* Rami *umbellati.* Folia *sparsa, rarò verticillata, integra, serrata, v. pinnatifido-incisa, in eodem stirpe quandoque varia; in plantâ juvenili v. mutilatâ sæpè serrata, v. incisa, dum in adultâ et illæsâ integerrima.* Amenta *solitaria, terminalia v. e dichotomiis, rarò lateralia, bracteolis nonnullis, brevibus, angustis subtensa, cylindracea, in quibusdam abbreviata.* Bracteæ *flosculorum persistentes, majores solitariæ; minores geminatæ, collaterales, interiores.* Amenti *fructiferi rachis utplurimum incrassata, et cum folliculorum basibus conferruminata.* Semina *nigra, apice cuneato-alata, nucleo in lacunâ respondente dissepimenti lignei semiimmerso.*

*1. B. *pulchella,* foliis acerosis integerrimis muticis (unguicularibus), calycis unguibus lanatis: laminis glabris, stigmate depresso-capitato.

Hab.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land; in ericetis aridis prope littora. (ubi v. v.)

*2. B. *sphærocarpa*, foliis acerosis integerrimis mucronulatis (uncialibus), calycis unguibus laminisque hirsutis, stigmate subulato, strobilis globosis, folliculis ventricosis apice compressiusculis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis depressis. (ubi v. v.)

*3. B. *nutans*, foliis acerosis integerrimis mucronulatis, amentis nutantibus, calycibus sericeis, folliculis apice dilatatis depressis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis aridis prope littora. (ubi v. v.)

4. B. *ericifolia*, foliis acerosis emarginato-bidentatis (unguicularibus): marginibus integerrimis, amentis elongatis, calycibus sericeis, stigmate capitato.

Banksia ericæfolia. *Linn. Suppl.* 127. *Lam. Encyc. Botan.* 1. *p.* 369. *Illust. Gen.* 1. *p.* 242. *n.* 1276. *Willd. Sp. Pl.* 1. *p.* 536. *And. Repos.* 156. *Cavan. Anal. de Hist. Nat.* 1. *p.* 221.* *Ic.* 6. *p.* 27.* *t.* 538. *Pers. Synop.* 1. *p.* 117.

Banksia. *White's Voy. tab. ad p.* 225. *fig.* 1. strobilus.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis saxosis. (ubi v. v.)

5. B. *spinulosa*, foliis (adultis) acerosis (1—3-uncialibus) apice tridentatis dente intermedio longiore: marginibus spinuloso-dentatis integerrimisve, calycibus basi intùs imberbibus, stigmate subulato.

Banksia spinulosa. *Smith New Holl.* 1. *p.* 13.* *t.* 4. *Willd.*

Sp. Pl. 1. *p.* 536. *Cavan. Anal. de Hist. Nat.* 1. *p.* 219.* *Ic.* 6. *p.* 26.* *t.* 537. *Pers. Synop.* 1. *p.* 17.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis aridis. (ubi v. v.)

Obs. Frutex est et sæpiùs humilis, nec Arbor decempedalis, &c. ut habet Cavanilles. l. c.

*6. B. *collina*, foliis linearibus spinuloso-dentatis denticulo terminali breviore subtùs venosis, bracteis amenti obtusis apice tomentosis, calycibus basi intùs imberbibus, caule fruticoso.

Hab. In Novæ Hollandiæ orâ orientali; in collibus apricis prope littora. Hunter's River. (ubi v. v.)

*7. B. *occidentalis*, foliis linearibus extra medium spinuloso-dentatis subtùs aveniis, bracteis amenti apice glabris, calycibus marcescentibus: unguibus basi intùs barbatis, folliculis ventricosis tomentosis: apice compressiusculo nudo, caule fruticoso, ramulis glabris.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis. (ubi v. v.)

*8. B. *littoralis*, foliis elongato-linearibus spinuloso-dentatis basi attenuatis subtùs aveniis, calycibus deciduis, folliculis compressis bracteisque strobili apice tomentosis, caule arboreo, ramulis tomentosis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad littora arenosa sinuum. (ubi v. v. flor. delaps.)

9. B. *marginata*, foliis linearibus truncatis mucronulatis integerrimis v. dentatis: venulis subtùs inconspicuis, ramis ultimis hirsutis,

hirsutis, bracteis omnibus amenti apice glabris: majoribus acutis, caule fruticoso.

α. Frutex erectus, orgyalis. Amentum foliis plerumque integris longius.

Banksia marginata. *Cavan. Anal. de Hist. Nat.* 1. *p.* 227. *Ic.* 6. *p.* 29.* *t.* 544.

β. Frutex erectus, orgyalis. Folia spinuloso-dentata, planiuscula, amento quandoque longiora.

Banksia microstachya. *Cavan. Anal. de Hist. Nat.* 1. *p.* 224. *Ic.* 6. *p.* 28.* *t.* 541. exclus. syn. Linnei.

γ. Frutex humilis, diffusus. Folia spinuloso-dentata, planiuscula, cuneata, amento longiora.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis. (ubi v. v.)

*10. B. *depressa*, foliis elongato-cuneatis truncatis mucronulatis spinuloso-dentatis: subtùs obsoletè costatis venulis inconspicuis, bracteis omnibus amenti (folia vix æquantis) tomentosis obtusis, caule prostrato, ramulis ultimis hirsutis.

Hab. In Insulæ Diemen plagis australioribus; in saxosis ad radices montium. (ubi v. v.)

*11. B. *patula*, foliis cuneato-linearibus truncatis mucronulatis integris v. paucidentatis (uncialibus) subtùs reticulato-venosis, bracteis amenti apice tomentosis obtusis, calycis laminis carinâ glabrâ, caule diffuso, ramulis ultimis tomentosis.

Hab. In Novæ Hollandiæ orâ australi; Flinders' Land: inter frutices, in sterilibus elevatioribus. (ubi v. v.)

*12. B. *australis*, foliis linearibus truncatis mucronulatis margine recurvis integris subtùs reticulato-venosis, ramulis ultimis tomen-

tomentosis, bracteis amenti obtusis subæqualibus apice tomentosis, calycis laminis carinâ obsoletissimâ sericeâ, caule arboreo.

HAB. In Insulâ Diemen, ubique in campis et prope littora, necnon in orâ australi Novæ Hollandiæ prope Port Phillip. (ubi v. v.)

*13. B. *insularis*, foliis lineari- v. cuneato-oblongis subrotundatis cum mucronulo sparsis verticillatisve subtùs reticulato-venosis, bracteis amenti obtusis extrorsùm tomentosis, folliculis compressis apice glabris.

HAB. In Insulis Freti Bass, et in Insulâ Diemen, prope littora. (ubi v. v.)

14. B. *integrifolia*, foliis verticillatis oblongo-lanceolatis integris mucronulatis: subtùs venulis reticulantibus conspicuis, folliculis tomentosis, caule arboreo.

α. Arbor parva v. mediocris. Folia oblanceolata, sæpiùs acuta, basi attenuata. Bracteæ geminatæ obtusæ, solitariis acutis dimidio minores.

Banksia integrifolia. *Linn. Suppl.* 127. *Lam. Encyc. Botan.* 1. *p.* 369. *Illust. Gen.* 1. *p.* 242. *n.* 1275. *Willd. Sp. Pl.* 1. *p.* 535. *Cavan. Anal. de Hist. Nat.* 1. *p.* 229. *Ic.* 6. *p.* 30. *tab.* 546.

Banksia spicata. *Gært. Sem.* 1. *p.* 221. *t.* 48.

Banksia oleæfolia. *Cavan. Anal. de Hist. Nat.* 1. *p.* 228. *Ic.* 6. *p.* 30. *t.* 545.

Banksia glauca. *Cavan. Anal. de Hist. Nat.* 1. *p.* 230. *Ic.* 6. *p.* 31.*

β. Arbor magna. Folia lanceolato-oblonga, sæpiùs obtusiuscula, basi acuta. Bracteæ geminatæ obtusæ, solitariis acutiusculis haud dimidio minores.

HAB.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: juxta littora marina. *β*. In orâ australi, prope Port Phillip. (v. v.)

Obs. Species polymorpha, cui nimis affines sunt *B. insularis* et *compar*.

15. B. *compar*, foliis sparsis lingulato-oblongis emarginatis muticis dentatis integrisve: subtùs reticulato-venosis niveis, ramulis bracteisque tomentosis, calycibus sericeis, caule arboreo.

Hab. In Novæ Hollandiæ orâ orientali; prope Keppel Bay: juxta littora. (ubi v. v. absque fructu.)

Obs. Præcedenti proxima; an distincta species?

16. B. *verticillata*, foliis verticillatis lingulato-oblongis obtusis muticis: subtùs aveniis niveis, bracteis amenti tomentosis obtusis: involucrantibus hirsutis, caule arboreo.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: prope littora. (ubi v. v.)

17. B. *coccinea*, foliis alternis cuneato-obovatis oblongisve dentatis truncatis costatis reticulato-venosis basi transversis, bracteis subulatis calycibusque lanatis, stigmate pyramidali.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis prope littora. (ubi v. v.)

*18. B. *paludosa*, foliis subverticillatis cuneato-oblongis subtruncatis basi attenuatis extra medium dentato-serratis, margine subrecurvis: subtùs costatis reticulato-venosis, petiolis ramulisque glabris, calycibus sericeis, caule fruticoso.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in paludosis. (ubi v. v.)

19. B. *ob-*

19. B. *oblongifolia*, foliis sparsis angusto-oblongis truncatis dentato-serratis basi acutiusculis: subtùs costatis reticulato-venosis, petiolis ramulisque tomentosis, bracteis majoribus amenti acuminatis, calycibus sericeis, caule fruticoso.

Banksia oblongifolia. *Cavan. Anal. de Hist. Nat.* 1. *p.* 225.* *Ic.* 6. *p.* 28.* *t.* 542.

Banksia asplenifolia. *Salisb. Prod.* 51?

Banksia salicifolia. *Cavan. Anal. de Hist. Nat.* 1. *p.* 231. *Ic.* 6. *p.* 31.*? folia enim in hâc specie quandoque integra.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in ericetis. (ubi v. v.)

20. B. *latifolia*, foliis obovato-oblongis spinuloso-serratis basi acutis: subtùs costatis reticulatis cinereo-tomentosis, calycis unguibus sericeis: laminis glabris, caule fruticoso.

Banksia robur. *Cavan. Anal. de Hist. Nat.* 1. *p.* 226.* *Ic.* 6. *p.* 29.* *t.* 543.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in paludosis. (ubi v. v.)

Obs. Hujus speciei nomen Cavanillesii mutare coactus sum, quoniam nunquam arborescit sed frutex humilis est.

21. B. *marcescens*, foliis cuneiformibus planis sparsis truncatis extra medium dentato-serratis: basi acutiusculâ, ramis tomentosis, calycibus persistentibus folliculisque glabris.

Banksia præmorsa. *And. Repos.* 258.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: prope littora. (ubi v. v.)

Obs. Cùm folia minimè præmorsa falsum nomen mutare non hesitavi.

*22. B. *at-*

*22. B. *attenuata*, foliis elongato-linearibus truncatis basi attenuatis extra medium serratis: subtùs costatis reticulatis areolis tomentosis, bracteis apice hirsutis, calycibus glabris, folliculis tomentosis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: prope littora. (ubi v. v.)

*23. B. *elatior*, foliis elongato-linearibus subtruncatis serratis subtùs reticulatis: adultis glabriusculis, bracteis imberbibus calycibusque tomentosis, stylo glaberrimo, stigmate ovali-clavato, caule arboreo.

Hab. In Novæ Hollandiæ orâ orientali; prope Sandy Cape: prope littora. (ubi v. v.)

24. B. *serrata*, foliis lato-linearibus elongatis truncatis serratis: subtùs reticulatis glabriusculis: basi attenuatâ, stylo imo pulvereo-pubescenti, stigmate cylindraceo sulcato: basi obliquè incrassatâ, caule arboreo.

Banksia serrata. *Linn. Suppl.* 126.* *Lam. Encyc. Botan.* 1. *p.* 369. *Illust. Gen.* 1. *p.* 242. *t.* 54. *f.* 1. *White's Voy.* 222. *cum tab.* 2 *prioribus.* *Willd. Sp. Pl.* 1. *p.* 535. *And. Repos.* 82.

Banksia conchifera. *Gært. Sem.* 1. *p.* 221. *t.* 48. *f.* 1.

Banksia serrata. *Cavan. Anal. de Hist. Nat.* 1. *p.* 222. *Ic.* 6. *p.* 27. *t.* 540. (forsan ad sequentem pertinet.)

Banksia dentata. *Wend. Hort. Herenh. tab.* 8.? vel ad sequentem pertinens.

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis prope littora. (v. v.)

*25. B. *æmula*, foliis lato-linearibus elongatis truncatis profundè serratis: subtùs reticulatis glabriusculis, calycibus sericeis, stigmate

stigmate capitato exsulco nitido apice (quadrangulo) styli duplò crassiore, caule fruticoso.

Banksia serratifolia. *Salisb. Prod.* 51. ?

Banksia serrata. *White's Voy.* 222. *tab. tertia?*

Hab. In Novæ Hollandiæ orâ orientali; prope Port Jackson: in campis arenosis ericetisque. (ubi v. v.)

Obs. B. serrata *Cavan.* et dentata *Wend.* suprà ad B. serratam citatæ, fortè ad hanc, valdè affinem, pertinent.

26. B. *dentata*, foliis cuneato-oblongis truncatis sinuato-dentatis undulatis basi acutis: subtùs costatis venulosis niveis, calycibus sericeis, folliculis tomentosis.

Banksia dentata. *Linn. Suppl.* 127. *Willd. Sp. Pl.* 1. *p.* 536.

Hab. In Novæ Hollandiæ orâ orientali, prope Endeavour River; et in septentrionali, Arnhems Land: prope littora. (ubi v. v.)

*27. B. *quercifolia*, foliis oblongo-cuneatis subtruncatis glabris serrato-incisis: incisuris mucronatis, calycis laminis aristatis! folliculis glabriusculis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis prope littora. (ubi v. v.)

*28. B. *speciosa*, foliis linearibus pinnatifidis: lobis triangulari-semiovatis mucronatis subtùs niveis obsoletè nervosis, calycis laminis lanatis, stylo pubescenti, folliculis tomentosis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in saxosis prope littora. (ubi v. v.)

29. B. *grandis*, foliis pinnatifidis: lobis triangulari-ovatis acutis planis subtùs nervosis glabriusculis, calycis laminis folliculisque glabris.

Banksia

Banksia grandis. *Willd. Sp. Pl.* 1. *p.* 535.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

30. B. *repens*, foliis pinnatifidis: lobis sinuatis v. dentatis, caule prostrato.

Banksia repens. *Labill. Voy.* 1. *p.* 412. *t.* 23. *Nov. Holl.* 2. *p.* 118.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis collibusque saxosis. (ubi v. v.)

*31. B. *ilicifolia*, foliis cuneatis inciso-serratis subtùs glabriusculis, amentis brevissimis, calycis unguibus diu cohærentibus stylum æquantibus: laminis citiùs dehiscentibus!.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in campis collibusque prope littora. (ubi v. v.)

Obs. Species tam singularis ut ferè proprii generis, transitum ad Dryandras facilem reddit.

38. DRYANDRA.

Char. Gen. *Calyx* quadripartitus v. quadrifidus. *Stamina* apicibus concavis laciniarum immersa. *Squamulæ* hypogynæ quatuor. *Ovarium* biloculare, loculis monospermis. *Folliculus* bilocularis, ligneus: *Dissepimento* libero, bifido. *Receptaculum commune* planum, floribus indeterminatim confertis, paleis angustis, rarò nullis. *Involucrum commune* imbricatum.

Habitus. Frutices *plerumque humiles.* Rami *dum adsint sparsi vel umbellati.* Folia *sparsa, pinnatifida v. incisa, plantæ juvenilis conformia.* Involucra *solitaria, terminalia, rarò lateralia sessilia, foliis confertis interioribus quandoque nanis obvallata, hemisphærica, bracteis adpressis, in quibusdam apice appendiculatis.*

Obs.

Obs. Dryandra of Thunberg, first published in Flora Japonica, being not generically different from Aleurites, which was previously established by Forster, I have peculiar satisfaction in giving the name of my respected friend, Mr. Dryander, to a genus so nearly related to Banksia, from which indeed it differs chiefly in Inflorescence, but in that respect so widely as to be at once distinguishable : there is also something in the habit, especially in the leaves of the greater number of species, by which, independent of the parts of fructification, the genus is pretty certainly indicated ; and it is worthy of notice, that, while Banksia is generally spread over all the coasts of New Holland and of Van Diemen's Island, Dryandra has hitherto been observed only on that part of the south coast called Lewins Land, where, however, its species are nearly as numerous and abundant as those of Banksia itself.

*1. D. *floribunda*, foliis cuneiformibus inciso-serratis, involucri bracteis exterioribus glabriusculis, calycis laminis glabris, stigmate subclavato obtuso.

Hab. In Novæ Hollandiæ orâ australi : Lewins Land : in collibus saxosis. (v. v.)

Variat receptaculo epaleato.

*2. D. *cuneata*, foliis cuneiformibus sinuato-dentatis spinosis petiolatis, involucri bracteis omnibus sericeis, calycis laminis barbatis, stigmate subulato-filiformi acuto.

α. Folia vix sesquiunciam longa, dentibus terminalibus subæqualibus.

β. Folia biuncialia, apicis dilatati denticulo medio breviore sinubus latioribus. Forsan species distincta.

Hab.

Dryandra formosa

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*3. D. *armata*, foliis pinnatifidis: lobis triangularibus planis divaricatis rectis spinoso-mucronatis: terminali proximis longiore; subtùs reticulatis venulis nudis, ramis calycisque laminis glabris, stylo basi pubescenti, stigmate subulato sulcato.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*4. D. *falcata*, foliis pinnatifidis: lobis subulato-triangularibus divaricatis falcato-recurvis spinoso-mucronatis: terminali proximis breviore; subtùs reticulatis venulis nudis, ramis pubescentibus, laminis calycis styloque longitudinaliter glabris, stigmate clavato exsulco.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*5. D. *formosa*, foliis elongato-linearibus pinnatifidis: lobis scaleno-triangularibus muticis planis subtùs niveis, involucris tomentosis: foliolis interioribus lineari-oblongis, receptaculo paleaceo. *Tab. III.*

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in sterilibus prope littora. (ubi v. v.)

6. D. *mucronulata*, foliis elongato-linearibus pinnatifidis: lobis isoscelo-triangularibus mucronulatis planis subtùs niveis, involucris tomentosis: foliolis interioribus linearibus mucronatis, receptaculo paleaceo, caule subsimplici.

Hab.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in depressis saxosis. (ubi v. v.)

*7. D. *plumosa,* foliis elongato-linearibus pinnatifidis: lobis isoscelo-triangularibus mucronulatis margine subrecurvis subtùs niveis, involucri foliolis interioribus plumoso-aristatis, receptaculo epaleato.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land; in lateribus saxosis collium. (ubi v. v.)

*8. D. *obtusa,* foliis linearibus pinnatifidis caule decumbenti tomentoso longioribus: lobis triangularibus obtusis subtùs niveis margine incrassato-recurvis, involucri bracteis exterioribus ovatis, interioribus lineari-oblongis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in apricis prope littora. (ubi v. v.)

9. D. *nivea,* foliis linearibus pinnatifidis caulem glabrum subæquantibus: lobis scaleno-triangularibus acutis mucronulatis subtùs niveis margine recurvis, involucri bracteis lineari-lanceolatis glabris ciliatis, calyce quadrifido, unguibus laminisque hirsutis.

α. Folia lobis adscendentibus, mucronatis, subtùs venosis. Stigma stylo parùm crassius.

Banksia nivea. *Labill. Voy.* 1. *p.* 413. *t.* 24. *Nov. Holl.* 2. *p.* 118.

β. Folia lobis divaricatis, uninervibus, subaveniis. Stigma stylo vix crassius.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in saxosis prope littora. (ubi v. v.)

*10. D. *lon-*

*10. D. *longifolia*, foliis linearibus pinnatifidis longissimis acutis subtùs cinereo-tomentosis: basi attenuatâ integerrimâ; lobis triangularibus adscendentibus decurrentibus margine recurvis, involucri bracteis elongato-linearibus margine barbatis extùs glabris, calycis unguibus basi lanatis suprà pubescentibus: laminis pilosiusculis, caule tomentoso.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in collibus saxosis. (ubi v. v.)

*11. D. *tenuifolia*, foliis elongato-linearibus pinnatifidis subtruncatis subtùs niveis: basi attenuatâ integerrimâ petioliformi; lobis triangularibus decurrentibus divaricatis margine recurvis, involucri bracteis tomentosis: exterioribus ovato-lanceolatis, calycis unguibus basi lanatis suprà cauleque glabris.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: in ericetis. (ubi v. v.)

*12. D. *pteridifolia*, foliis pinnatifidis caule tomentoso longioribus: lobis linearibus acutis mucronatis margine revolutis basi dilatatis, involucri bracteis tomentosis ovatis.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: ad latera saxosa collium. (ubi v. v.)

*13. D. *blechnifolia*, foliis pinnatifidis caule tomentoso longioribus: lobis linearibus obtusis mucronulatis trinervibus margine recurvis basi simplici.

Hab. In Novæ Hollandiæ orâ australi; Lewins Land: prope King George's Sound. *D. Archibald Menzies.* (v. s. absque fructificatione.)

Obs. Ad hoc genus retuli, ob summam affinitatem cum *Dryandrâ pteridifoliâ*, cujus vix varietas.

To

To render this essay as complete as I am able, I proceed to notice such plants, as either belong or have been referred to Proteaceæ, but from my imperfect acquaintance with which, or from the unsatisfactory accounts hitherto given of them, could not with certainty be referred to any of the genera described, or, if referable to any of them, I could not with confidence propose as distinct species; and shall conclude with the addition of a few synonyms to the species described, from Ray's Historia Plantarum, which had escaped me when the paper was first read to the Society.

Leucadendron *linifolium*, foliis lineari-spathulatis aversis basi attenuatis ramisque glabris, capitulo masculo sessili foliis circumvallantibus longiore, calycis tubo barbato: laminis stylisque imberbibus.

Protea linifolia. *Jacq. Hort. Schœnb.* 1. *p.* 11. *t.* 26.

Obs. There can be no doubt of the genus of this plant, or of the individual figured by Jacquin being a male. From the same figure, by which alone I am acquainted with it, it seems to be very nearly related to *Leucadendron tortum*, from which it differs in having the male heads sessile, and in the laminæ of the calyx being quite smooth.

Leucadendron *fusciflorum*, foliis lineari-lanceolatis glabris junioribus rectis basi attenuatis, capitulo femineo foliis circumvallantibus breviore, calycis laminis plumoso-barbatis: tubo pilosiusculo.

Protea fusciflora. *Jacq. Hort. Schœnb.* 1. *p.* 11. *t.* 27.

This

This also is known to me only from Jacquin's figure, from which it is unquestionably a Leucadendron, and a female plant; it can hardly however be supposed the female of the preceding species; and though I have here constructed a specific character for it, I think it is not improbably a variety of *Leucadendron angustatum.*

LEUCADENDRON.

Protea linearis. *Houtt. Nat. Hist. par.* 2. *vol.* 4. *p.* 116. *t.* 19. *f.* 2. *ed. Germ. vol.* 3. *p.* 84. *t.* 19.

This is undoubtedly a Leucadendron, and probably a female plant; but from the figure alone its species cannot be determined.

LEUCADENDRON.

Protea stellaris. *Sims Bot. Mag.* 881.

Seems to be a male plant, and apparently different from any thing I have seen. From the form of the leaves and the length of those surrounding the capitulum, I am inclined to consider it as the male of Jacquin's Protea fusciflora already noticed.

LEUCADENDRON.

Conocarpodendron; folio tenuissimo, angustissimo, saligno; cono calyculato. *Boerh. Lugd. Bat.* 2. *p.* 203. *c. tab.*

This is probably a male plant, notwithstanding the figure of a ripe cone is given at the bottom of the plate; the separate fruits of some of Boerhaave's figures belonging decidedly to very different species. It may be the male of *Leucadendron adscendens.*

LEUCADENDRON?

Protea odorata. *Thunb. Prod. Append.* 187.

 There

There is no means of determining the genus of this plant, but it is rather more probably a Leucadendron than belonging to any other.

Leucadendron ??

Conocarpodendron; acaulon; folio rigido, nervoso, oblongo, latiori; cono fusco; semine oblongo, in mediò quasi excavato. *Boerh. Lugd. Bat.* 2. *p.* 201. *c. tab.*

I know not what to make of this. If the strobilus and nuces at the bottom of the plate really belong to it, it must be referred to Leucadendron, and will stand near L. *retusum* or L. *plumosum*; but there are some circumstances both in the figure and description which render this very doubtful. Thunberg refers it to his P. strobilina, but the descriptions by no means agree.

Leucadendron ?

Scolymocephalus Oleæ folio. *Sherard. in Raj. Hist.* 3. *Dendr. p.* 10.

This, according to Boerhaave, is his Conocarpodendron, &c. 2. *p.* 197. *c. tab.* which I have considered as the female of *Leucadendron squarrosum.*

Leucadendron ??

Protea glabra. *Thunb. Diss. n.* 52.

From the very short and unsatisfactory description of Thunberg, the genus of this plant cannot be determined, or even with much probability guessed at.

Isopogon.

Protea divaricata. *And. Repos.* 465.

Can this be a variety of *Isopogon anemonifolius?* The yellow flowers

flowers satisfy me that it is not a species of Serruria, and prevent me at the same time from referring it to *Isopogon anethifolius*, whose leaves are not unlike, but whose flowers are of a very different colour.

Protea.

Protea venosa. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1212. *Poiret. Encyc. Botan.* 5. *p.* 640.

Said by Poiret to resemble in most respects *Protea longiflora*; it must therefore be a genuine Protea.

Protea.

Scolymodendros *Africanus* ex Monte Tabulari. *Pluk. Mant.* 168. *t.* 442. *f.* 4.

This is manifestly a Protea, which it appears Plukenet had seen only in the possession of Woodward. The head, especially in the form of the bracteæ, bears a great resemblance to that of *Protea cynaroides*; but the leaves are so very different, that, unless we suppose they were drawn from memory and disproportionately reduced, it cannot be referred to this species. It is probably however one of the more common kinds, and I know not what else to suppose it may be, except *Protea grandiflora.* The figure itself has never, so far as I know, been noticed by any author.

Leucospermum.

Scolymocephalus *Africanus*, foliis in summitate profundiùs crenatis, intercreniis majoribus florum staminulis longis recurvis. *Raj. Hist.* 3. *Dendr. p.* 10.

This is probably a Leucospermum, and perhaps L. *ellipticum.*

Mimetes ?

Protea dichotoma. *Lam. Illust. Gen.* 1. *p.* 235. *n.* 1219. *Poiret. Encyc. Botan.* 5. *p.* 643.

Probably a spurious Mimetes.

Serruria *Bergii,* capitulis simplicibus solitariis subpedunculatis, bracteis cuneiformibus truncatis cum acumine villosis: inferioribus glabris, calycibus curvatis sericeis, stigmate turbinato-capitato, ramulis foliisque glabris.

Leucadendron sphærocephalum. *Berg. cap.* 26.*

This I have no hesitation in referring to Serruria; and from the description of the accurate Bergius I am disposed to think it distinct from any I am acquainted with. It seems most nearly related to *Serruria acrocarpa,* differing chiefly in the smoothness of its branches, and in having terminal heads.

Serruria.

Protea sphærocephala. *Houtt. Nat. Hist. par.* 2. *vol.* 4. *p.* 99. *t.* 19. *f.* 1. *ed. Germ. vol.* 3. *p.* 72. *t.* 19.

Unquestionably a Serruria, and probably referable either to S. *hirsuta* or *pedunculata.*

Serruria.

Protea villosa. *Thunb. Prod. Append.* 186.

A Serruria whose characters cannot be made out from the specific difference given by Thunberg.

Serruria.

Protea triternata. *And. Repos.* 337.

This may be intended for *S. congesta,* but I cannot with confidence refer to it as such.

Serruriæ.

Protea abrotanifolia minor. *And. Repos.* 536.

Protea abrotanifolia hirta. *And. Repos.* 522.

Protea abrotanifolia odorata. *And. Repos.* 545.

These are manifestly Serruriæ, but I do not venture to refer them to any of the species I have described; nor are there sufficient materials from which they may be characterized as distinct species.

Nivenia.

Protea concava. *Lam. Illust. Gen.* 1. *p.* 234. *n.* 1217. *Poiret. Encyc. Botan.* 5. *p.* 642.

A species of Nivenia, and perhaps one of those described.

Nivenia?

Protea candicans. *Thunb. Prod. Append.* 186.

Probably a Nivenia, and perhaps not different from N. *mollissima*: it may however be a species of *Serruria*, in which case it is probably S. *candicans*.

Protea *prostrata*. *Thunb. Prod.* 27.

I know not to what genus this may belong; but from the species near which Thunberg has placed it, it may be supposed to be either a *Protea* or a *Leucadendron*: if the latter, it is probably not very different from L. *retusum*.

Hakea.

Conchium drupaceum. *Gært. Carp.* 3. *p.* 217. *t.* 219.

I cannot refer this fruit to any of the species I have described.

Embothrium *chaparro*. *Humb. Æquin. Bot.*

Of this I know nothing but the name, which occurs in Humboldt's Chart of Æquinoctial Botany, and is placed there at the height of about 1600 feet.

Embo-

Embothrium *strobilinum.* *Labill. Nov. Holl.* 2. *p.* 116. *t.* 265.

The seeds of this remarkable plant, which I am acquainted with only from Labillardiere's figure and description, being unknown, and the internal structure of its ovarium not having been examined, its genus cannot be determined. Its regular and deeply divided calyx, the four glands at the base of the ovarium, and its vertical equilateral stigma, point out its near affinity to Knightia, from which it differs in the style being deciduous, and perhaps also in the number and form of its seeds. If these are but two in number, it would be still more nearly related to Orites; but something in its whole appearance, and especially its uncommonly large bracteæ, indicates its being a distinct genus.

According to Labillardiere, it is a native both of New Caledonia and the south-west coast of New Holland: but as I am acquainted with no plant of the order, which has so wide a range as this, and as it may be presumed the specimens from New Holland were very imperfect, otherwise so remarkable a plant would surely have found a place in the body of his work, I may be permitted to question the accuracy of the statement. I confess however that I know no plant of Lewin's Land with which this could be confounded.

Roupala *pinnata.* *Lam. Illust. Gen.* 1. *p.* 243. *n.* 1282. *Poiret. Encyc. Botan.* 6. *p.* 317. *Rudg. Pl. Guian.* 25. *t.* 38.

There can be little doubt of this plant constituting a distinct genus; but its fruit being entirely unknown, it is better to place it among those which require a further examination. It was referred to Rhopala at a time when that genus was not at all understood. In its compound leaves, its irregular

calyx,

calyx, and even in some degree in the glands subtending the ovarium, it seems to approach more nearly to Gevuina; and I am therefore inclined to think its fruit will be found to be a drupa, and not a folliculus as that of Rhopala. The whole plant however is so remarkable, that I here add a description taken from an excellent specimen, in Mr. Lambert's Herbarium, collected by the unfortunate Martin in Guiana, where it seems to have been first found by Richard.

Frutex? v. Arbor. *Ramuli* teretes, tomento minuto cinerascentes. *Folia* alterna, abruptè pinnata, 3-4-juga. *Foliola* opposita, petiolata, latè ovata, obtusa quandoque acutiuscula, integerrima, glaberrima, super nitida, subter ferè opaca, venulis anastomozantibus parùm emersis reticulata: dum $3\frac{1}{2}$ uncias longa 2 uncias lata. *Petioli* partiales semunciales, semiteretes, cum rachi teretiusculâ articulati. *Spica* terminalis, pedunculata, erecta, folio brevior, pedunculo longior, racemosa: *Pedunculo* rachique teretibus, pube brevissimâ cinereo-ferrugineis (in sicco). *Pedicelli* geminati, teretes, calyce breviores. *Calyx* tetraphyllus. *Foliola* ante expansionem in tubum curvatum cylindraceum clausum utrinque ampliatum cohærentia, mox ad basin distincta, decidua, linearia, extùs pube tenuissimâ arctè appressâ (in sicco) cinereo-ferrugineâ; intùs glabra: *Unguibus* linearibus, basi dilatatis: *Laminis* ovatis, acutis, concavis. *Stamina* 4. *Filamenta* brevissima, basi laminarum imposita. *Antherarum* lobi (connectivo) adnati, distincti, basi parùm divergentes, longitudinaliter dehiscentes. *Pollen* flavum. *Ovarium* brevè pedicellatum, parvum, uniloculare, dispermum, ovulis collateralibus: *Pedicello* basi cincto *Squamâ* latâ, glabrâ, adnatâ, (in sicco) corrugatâ, posticè subdeficiente, intersticiâ angustissimâ. *Stylus* cylindraceus, crassiusculus, glaber, longitudine unguium calycis. *Stigma* obliquum, convexum, stylo crassius, papillâ centrali.

Obs.

Obs. Singularis, Foliis verè compositis, petiolellis cum rachi articulatis; et Squamâ hypogynâ pedicello ovarii adnatâ, nec ipso receptaculo connexa.

Oritina *acicularis.* *Append. Flor. Nov. Holl. ined.*

This is a perfectly smooth erect shrub; with alternate cylindrical leaves, furrowed on the upper surface and terminated by a pungent mucro. I observed it only on the summit of the Table Mountain, at the southern extremity of Van Diemen's Island. The perfect flowers I have not seen, but have examined the ovarium so soon after fœcundation, that I have no doubt of its containing originally only two ovula; and as its base is surrounded by four glands, the calyx is probably regular. Hence its near affinity to Orites, with which it also agrees in inflorescence and apparently in stigma. The fruit is a smooth compressed coriaceous follicule, containing two seeds, which are winged at both ends; on which account I have not absolutely referred it to Orites, but, until its flowers are discovered, have given it a temporary name, indicating its affinity to that genus.

Banksia *musculiformis.* *Gært. Sem.* 1. *p.* 221. *Lam. Illust. Gen.* 1. *p.* 242. *n.* 1280.

Fructus musculiformis. *Rumph. Amb.* 2. *p.* 184. *t.* 60.

Gærtner has taken up this plant entirely from Rumpf's figure, and referred it to Banksia on account of its fruit containing according to that author two winged seeds. But from Rumpf's description, it appears that the whole plant is lactescent; hence it probably does not belong to this family, but rather to Apociniæ, as Burmannus has already conjectured.

Cylindria. *Lour. Cochin. ed. Willd.* 1. *p.* 86.

Both

Both Willdenow and Ventenat have considered this genus as belonging to Proteaceæ, with whose structure indeed the description of Loureiro in most respects well agrees. Mr. Konig, however, (Ann. of Bot. 1. p. 392.) assures us, on the authority of original specimens, that it is scarcely different from Olea, though Loureiro has characterized it as having four bilocular antheræ, included in the concave apices of the segments of the corolla; two circumstances altogether incompatible with Oleinæ, and which render it not improbable that the specimen sent to Sir Joseph Banks by the author was very different from that which he described.

Leucospermum *Conocarpum.*

Scolymocephalus *Africanus*, latifolius, lanuginosus, foliis in summitate crenatis, comâ sericeâ. *Raj. Hist.* 3. *Dend. p.* 9.

Mimetes *Hartogii.*

Scolymocephalos *Africanus* lanuginosus humilis, foliis in summo tridentatis, flore dilutè purpureo, carinulâ albulâ *Oldenlandii. Raj. Hist.* 3. *Dend. p.* 10. fide characteris et descriptionis.

Mimetes *cucullatus.* (*Raj. Hist.* 3. *Dend. p.* 10. *n.* 10.)

Mimetes *hirtus.*

Scolymocephalos *Africanus*, foliis brevioribus acuminatis, floribus rubentibus, summis surculis foliis intermistis. *Raj. Hist.* 3. *Dend. p.* 10.

 Besides

Besides the Proteaceæ described or noticed in this paper, I am acquainted with several very beautiful species, chiefly of Grevillea and Persoonia, discovered in New Holland by Mr. *George Caley*, a most assiduous and accurate botanist, who, under the patronage of Sir Joseph Banks, has for upwards of eight years been engaged in examining the plants of New South Wales, and whose numerous discoveries will, it is hoped, be soon given to the public, either by himself, or in such a manner as to obtain for him that reputation among botanists to which he is well entitled.

TABULARUM EXPLICATIO.

Fig. Tab. II. Knightia excelsa.

1. Flos expansus, parùm auctus.
2. Idem longitudinaliter apertus, magnitudine naturali.
3. Ejusdem basis cum glandulis hypogynis.
4. Pistillum auctum, ovario longitudinaliter secto ovulis quatuor.
5. Ovulorum insertiones et relativas positiones ostendens.
6. Ovulum paulò magìs auctum.
7. Pollen plurimùm auctum.

Tab. III. Dryandra formosa.

1. Ramus magnitudine naturali.
2. Flos magnitudine naturali.
3. Idem auctus.
4. Receptaculum commune magnitudine naturali et auctum.
5. Idem verticaliter sectum.
6. Paleæ receptaculi.
7. Folliculus.
8. Dissepimentum cum seminibus.
9. Semina.
10. Dissepimentum.
11. Pollen ad lentem auctum.

V. *On*

V. *On a remarkable Variety of Pedicularis Sylvatica. In a Letter to Alexander MacLeay, Esq. F.R.S. and Sec. L.S. By James Edward Smith, M.D. F.R.S. P.L.S.*

Read February 7, 1809.

Dear Sir,

I have lately been favoured by the Marquis of Stafford with a specimen of a remarkable variety of the *Pedicularis sylvatica*, gathered by his lordship last summer on his estate in Sutherland. It consists of a solitary flower of that plant, which, instead of its proper ringent form, with two long and two short stamens, has a salver-shaped regular corolla, with six stamens, four of which are longer than the others. There is also what appears to be the style partly changed to a petal, and yet bearing a membranous expansion like one side of an anther. I conceive therefore that this is really an attempt at a seventh stamen, though become partly a petal. There is however no other sign of a style. The Marquis sought in vain for another specimen; but it is remarkable that Mr. Hooker and Mr. Borrer found one resembling it in the same neighbourhood this very season.

This specimen is very interesting to me, as being another instance of the same kind of variety as I have noticed in *Galeopsis Tetrahit* at Matlock. See *Fl. Lapponica, ed.* 2. 201. I have also had in my own garden some regular salver-shaped flowers of *Chelone*

Chelone barbata on the very same branch with the proper ringent ones. Such accidents are frequent in various species of *Antirrhinum* and *Bignonia*. They should be kept in mind by all students of systematical arrangement, as a warning not to expect that our artificial rules can keep pace with the intricacies of nature.

I remain, &c.

J. E. SMITH.

Norwich, February 4, 1809.

VI. *A Botanical Description and Natural History of the Malabar Cardamom. By Mr. David White, Surgeon on the Bombay Establishment. Communicated by the Directors of the Hon. East India Company. With additional Remarks by William George Maton, M.D., V.P.L.S., &c.*

Read November 15 *and December* 6, 1808.

The plant producing Cardamoms is a singular, if not unique, instance of one of the most valuable articles of modern luxury being almost entirely indebted to the care of nature for its growth and perfection.

Lofty hills, whose summits are ever clothed with clouds, a moist atmosphere, or copious rains for three-fourths of the year, and an exposure admitting but a limited proportion of the sun-beams, are the circumstances which, the natives tell us, and experience proves, are most favourable to its growth, and are the sole requisites for an abundant crop. Simple as the progress is which conducts it through various stages to maturity and a marketable state, the subject claims attention, and derives importance from the general estimation and extended use of the spice, as a grateful and salubrious accessary of diet: its use as such is so universal, that it is now in a manner regarded as a necessary of life by most of the inhabitants of Asia; and its general adoption by the civilized nations of the other quarters of the world is prevented only by its limited importation. The possession of its trade has been

always an object of much competition ; and the best sources of it being now in possession of the English, accumulate fresh considerations for becoming better acquainted with its history.

When it is further premised, that the information here given is founded on documents ever judged most likely to attain the object of all useful investigation, namely, the testimony of intelligent natives on the spot, and actual inspection during a temporary residence undertaken for the purpose, the writer deems no further apology necessary for bringing forward the fruits of his observation.

I.

BOTANICAL DESCRIPTION.

MONANDRIA. MONOGYNIA.

AMOMUM CARDAMOMUM.

Calyx double, each spathous and tubular. *Outer and inferior* arising from the proper pedicle, embracing the inner calyx to near its summit, split before, keeled and pointed behind, withering. *Inner and superior* funnel-form, lax, continuous with and rising from the top of the germen, ascending with and reaching above the middle of the tube of the corolla. Border 2- or 3-cleft, unequally finely scored, permanent.

Corolla monopetalous, funnel-form. *Tube* ascending, cylindrical below, compressed a little upward, marked with three superficial furrows, evanescent as they descend from the divisions of the inner border. *Border* double, unequal. *Inferior and outer* reflected to the interior, membranous, 3-parted. Divisions oblong-linear, obtuse, with margins a little inflected, and ends turned up slipper-wise ; the middle or

or anterior one larger; a double linear band running along the centre of each. *Interior and upper border* fleshy, four-parted, unequal. The posterior division large, ascending from a contracted base, expanding rhomboidally; margin a little wavy, and obscurely three-lobed, centrally grooved half way up. The second, or what may be called the staminal division, half the length of the former, erect from the opposite side of the rim of the tube, linear nearly to half its height, then abruptly expanding in breadth and thickness to nearly double, lopped and tooth-like at the top, sloping inwardly into a shovel-like vaginal hollow, to receive the stigma and upper part of the style; a slight score bisecting it externally, and ending in an obsolete notch above. Third and fourth divisions exactly opposite to each other, and between the two former a pair of short, horizontal, horn-like processes slightly twisted, straitening the mouth of the tube and dividing it unequally.

Stamen with no filament, two pair of parallel antherous lines lying on the inner thickened part of the second division, contiguous below, but with their conical points free, and projecting into the mouth of the tube, diverging upwards to receive the expanded stigma and upper part of the style, their surface, and the space they inclose, heaped with globules of farina soon bursting into the finest pollen.

Pistillum shorter than the corolla, and of the length of the stamen.

Germen a lopped oval, smooth. Two conical segments erect from one side of its top contiguous to each other, half sheathing the style.

Style conical at its origin, then thread-like, lastly enlarging at the

the rim of the tube; passing which, it is received into the staminal sheath of the upper border.

Stigma obtusely triangular, a little excavated on the side of the tube, with the upper rounded edge prominent from the sheath.

Pericarpium a fleshy, fibrous, smooth capsule, contracting when dry into a surface corrugated lengthwise, obtusely trigonal, oblique a little; angles marked with a superficial score; sides inwardly bisected by a ridge; three-celled, with three valves. Seeds many, nidulating by means of a fine mucilaginous, splendid, silky membrane, and attached to the receptacle, or *rachis*, by an eight-toothed oblong fascia in each of its angles; the silky membrane of the seeds forming filamentous pedicles for this purpose. Seeds from 18 to 27, obtusely wedge-shaped, a furrow on the plain side, convex on the other; surface scabrous, hard, horny.

Flowers on lax panicled peduncles, issuing horizontally from the tuberous ringed part of the stem, near the root; generally two from each flat side. Common peduncle serpentine, jointed, or rather rimmed, tapering. Partial peduncles lateral from the rings at acute angles, and diminishing intervals; every partial peduncle supporting from two to four pedicled flowers, one or two of which abortive. Length of the peduncle varies from three and four inches to one and a half and two feet.

Bracteæ oblong, acute, and spathous, accompanying and enveloping the pedicles at their origin, withering.

Colour. Lower division of the corolla green; upper spreading petal of the inner border with a pink ramification, pale white on the outside and the rest of the border.

Stems.

Stems. Base tuberous, clubbed, ring'd rim-wise for two or three inches; the lower part giving out viviparous shoots, the upper part panicles. Stems erect from the base, and slightly elliptical, tapering as the continuous sheaths send off the leaves; when bearing, from six to twelve feet high, and from eight and twelve to thirty in number, quite smooth to the touch, finely scored to the eye, with varying shades of glossy green, pale at the base, which distinguishes this species from a congener frequent on the same site, but with a red or fuscous base.

Leaves very long, in the same plane, alternate, at distances a little unequal, supported on long sheaths embracing closely half the stem, elliptico-linear-spear-pointed, from nine inches to two feet and a half long, from one to five inches broad, upper side waved with narrow ridges and broad furrows acutely with the middle rib, smooth, dark-green, edges very entire, below pale sea-green, and glossy with a silky softness, middle rib channelled above, keeled below. Petioles short, grooved with a small obtuse squamous process embracing the stem above the sheath.

Roots fibrous, thinly ramose, and with here and there a fibre much longer and larger than the rest running obliquely into the soil.

There is no individual of the Amomum tribe that displays so much natural beauty as the Cardamomum. The glistening polish of its stems, the sea-green glossy surface of its leaves waving with the least impulse, and the general symmetry of the whole, easily distinguish it from its rival neighbours in the woods. It outshines them also in the elegance of its flowers: the vivid pink, surrounded by the pale white of the spreading division

of the upper border of the corolla, presents a most delicate contrast.

The shortness of its roots may relate to some hidden properties of its organic œconomy; or these may be compensated by the greater proportion of the leaves, absorbing more copiously from the air, and thus contributing to the formation of that elaborate essence which we so much admire in the perfect spice.

It may be expected that we should give some account of the name and the history of its commerce.

In Botany, the history and origin of names are so far useful, as they are immediately or remotely connected with the elucidation of the subject in question, the indication of its virtues, or the nation who first introduced its use, and the channels, if an article of trade, through which it first flowed to civilized countries.

In Malabar, the native soil of its best species, it is simply named *Ela*, or *Ela-tari* and *Ela-channa;* the former addition signifying a young plant, the latter a full-grown one. The word *channa* includes also some congeners, one of which, *Poiân-channa*, is so like the real Cardamom in appearance and foliage, as with difficulty to be distinguished by these marks only.

The ripe pod is styled exclusively *Ela-tari*, *ari* in Malabar signifying any small grain: e. g. *ari* rice, *mout-ari* natcheny or raggee.

Indiscriminately they also say *Ela-kai*, the last word being of general application to all kinds of perfect roots and seeds. In Sanskrit, the most common appellative is *Ela*. The synonyms are no fewer than 10, *viz.* Elum* *Walakum*, *Mailayum*, *Songani*, *Hari Walakum*, *Waleyiegum*, *Moukana*, *Kouna*, *Kounara*, *Agni-jivala*,

* My authority tells me that *Elum* is the *casus rectus* or nominative here, and that it becomes varied into *Ela* in the oblique inflections, or when annexed to other words which govern it. The same grammatical variation is also observed in the Malabar language.
Moudriwadine.

Moudriwadine. These are taken from idioms of the Amarsinha; but there is reason for supposing that all of them, except the first, are merely epithets, either allusive to its qualities and virtues, or suggested by that wild and extravagant fancy which characterizes the genius of Indian fabulists and poets. As *Ela* signifies leaf in both languages, I have no doubt but the assemblage of leaves, forming the most obvious and striking appearance of the plant, suggested to the first rude observers the natural and appropriate term. In the other parts of India, they give it names, all more or less similar to the indigenous. The Hindu is *Hil-Il,* or *Ilachi*; the Kanarese, *Ela-Ki.* These terminations are no doubt deduced from the *Kai* above mentioned, as the first syllable is from that of *Ela.*

Of the name Καρδαμωμον given to it by the Greeks, and *Cardamomum* by the Romans, neither I, nor those whom I consulted, can find any traces in the dialects of Hindostan. I am therefore inclined to conclude that the spice itself was not introduced among them, till at a late period of their history, and by some very circuitous or irregular channels, which left them to their own ingenuity to adapt a significant epithet: for this they had recourse to analogy. In their own language the Greeks had the word Καρδαμον to signify cresses, a production that approached to the nature of a spice, as near as to form the foundation of a comparison. When they added to this a word of superlative emphasis—*αμωμον,* (literally signifying perfect or faultless,) they may have conceived that they attained a tolerably clear idea of their new-imported luxury.—*Kakele,* both in Arabic and Persian, is, without doubt, connected with the indigenous *Ela,* or perhaps a compound of it.

In the medical practice of Europe, the use of Cardamoms is too limited to enable us to form a sufficient estimate of their

stimulant

stimulant power. They are seldom given alone, and their combination with other stimulants must render their effects uncertain. It is not unlikely that the high degree of acrimony ascribed to them by the natives may be comparative only to their own bland constitutions, the more susceptible of stimulus from their simple diet, and moderate and uniform habits of living.

It would be an object of considerable curiosity, if not some instruction, to trace the gradual introduction of Cardamoms into Europe, and their general adoption as a luxury, or use as a medicine. We have reason to think that they were little, if at all, known before the time of Augustus; and the silence of the Bible relative to them, proves that both the spice and its virtues were alike unknown to the Jews, and probably their neighbouring nations. This singular fate of a valuable luxury, and the circumstances connected with it, deserve further investigation.

I need scarcely refer to the description of Rumphius, as it is so very imperfect in detail respecting both the botanical and the natural history of the plant; but he disarms criticism and all attempt at censure, by his usual candour in confessing that it was taken from an exotic, which did not produce a perfect fructification, and of which the species is evidently different from that of Malabar, and is most likely the *Grana Paradisi.* He talks of the roots being tuberous and having the flavour of the spice, whereas the subject of the present sketch is without these marks, the taste of the radical fibres being nearly insipid, and though the leaves, on being chewed, leave behind them on the throat and palate an acrimonious sensation, no *aroma* analogous to that of the spice is discernible. The accuracy of his information may also be suspected, when he states that Cardamom is a name common all over Upper Hindostan. He may have been misled by Armenian merchants, who

had

had borrowed the appellation from the Greeks in the early period of its commerce; in which, most probably, they either directly or indirectly largely participated.

II.

THE CARDAMOM FARMS.

The spots chosen for these, called in the Malabar language *Ela-Kandy*, literally signifying Cardamom plots, are either level or gently sloping surfaces, on the highest range of the Ghaûts, after passing the first declivity from their base. The extent of climate hitherto known in Malabar to produce them lies betwixt 11° and 12° 30′ N. Lat. or thereabouts.

Steep places and the very summits of the hills would, the natives acknowledge, be also productive,—but with such an accumulation of labour, and in a quantity so stinted, as not to repay the additional pains: but here we must take into account their blind attachment to beaten tracks of cultivating, and their obstinate aversion to all attempts at improvement.

The months of February and March are, on account of the prevailing dry weather, selected as the most proper for commencing their labours; the first part of which consists in cutting down the large and small trees promiscuously, leaving, of the former, standing at nearly equal distances, certain tall and stately individuals, adapted to that degree of perpendicular shade which experience teaches them to be most favourable for the future crops. They affirm, and with some reason, that no little exactness is required in hitting this prolific medium; for, as too much sun burns up, so does excessive shade alike disappoint the hopes of harvest. The grass and weeds are then cleared away, and the ground disencumbered from the roots of the brushwood;

 the

the large trees lie where they fall; the shrubs, roots, and grass are piled up in different small heaps, and their spontaneous and gradual decomposition fertilizes the space they cover*.

They mention it as an infallible sign of future fertility, if the large trees, on falling, cause a *trembling* of the adjacent soil or mountain, as their phrase is; though it is not very probable that they ever reject a spot once chosen and begun upon, from the absence of this equivocal and perhaps imaginary symptom. Yet, if it really does take place, a rationale may be applied to explain it; for, as the soil of those woods is a very fine mould, soft and rare in proportion to its volume, so, where thin, and superficially intercepted by rocky or gravelly strata, it is not likely that it will be much affected by the gravity of the fall. On the contrary, if of great depth, the shock will be readily felt, and the commotion communicated through the spongy mass, connected as it is by a close intertexture of roots and fibres, and thus exciting in the sanguine and simple fancy of those children of nature an assimilation to an earthquake.

The size of the *Ela-Kandy* is various; sometimes from choice, at others, determined by the nature and extent of the surface or slope. The largest I saw among fifty did not exceed 60 yards in one diameter, and 40 in the other. Their form varies likewise, very commonly oblong or oval, sometimes a contour irregularly rounded. The variety in these respects is chiefly owing to the convenience of the standard or permanent trees for shade. Those with lofty strait stems, extensive heads, and that are in an adolescent state, and known to be long-lived, are preferred for this purpose, and left standing at 15 or 20 yards from each

* Mr. Pennant has therefore been led into an error in saying that ashes procured by burning on the spot are used as manure.—Vide Pennant's India, vol. i.

other.

other. Much more diminutive plots are also cultivated by a race of Hill People called *Kourchara* and *Cadera*, who are not exactly slaves, but locally attached, and acknowledging certain obligations of a feudal and perhaps reciprocal kind to the Nairs in the neighbourhood. They are, of course, permitted to reap the produce of their separate industry, without the participation of these superiors.

After the operations now described, no further labour is bestowed for four years. At the revolution of the fourth rainy season, and towards its close, they look for a crop, and their hopes are rarely disappointed: this first effort of nature is generally scanty; for instance, only one-half of what is reaped the following year, and only one-fourth of what is yielded after the sixth rains, at which period the plant has reached its acme of prolific vigour. Now and then, however, this routine is interrupted, and its progress protracted, by causes of which they are not very solicitous to investigate the nature: they remark, however, excessive and uninterrupted rains to be one source of failure.

In the dry season succeeding to the first crop, they grub up the undergrowth of shrubs, and clear away the weeds and grass, laying them up, as before, in heaps to rot; for in no case do they set fire to these, the consequence of which practice would be the certain failure of the crops. This agrees with the most approved ideas of agriculture even in Europe, where the most substantial and copious manures are produced from the mouldering piles of weeds, and vegetable offals of every description.

This process of cleaning being yearly repeated, the same spot will continue productive for 50 years and upwards. My informers would not specify any term or number; they said that it exceeded their habits of computation, and the memory of any one generation. Another opinion similarly founded is, that the

 exhausted

exhausted Ela-Kandy will require an equal period of years before it recovers by rest its ancient vigour. Both limits are so far explicable on natural principles, and appear to be regulated by the exhausting and accumulating excitabilities inherent in the soil, and operated upon by a continuance of the same crop. The successive decay and fall of the large standard trees, destroying one of the most essential conditions of the prosperity of the plantation, is another and evident circumstance determining the period of its duration.

The reproduction of the same trees, to a size capable of sheltering the young plants, will give the least measure for the quiescent state of the ground, and this cannot be less than twenty or thirty years, considering their average growth.

The barren state of one Ela-Kandy is immediately replaced by the establishment of another on a fresh side, and with similar properties to the former; in the choice of which they can never be at a loss, from the great extent of mountain and wood in a state of nature; and, the same operations repeated, the customary routine of crops will follow.

As the Cardamom plants spring up from scattered seeds dormant on the spot, or washed thither by rains from the adjacent parts, we do not find any regularity in their disposition, nor is the industry of the natives ever exerted to correct this. Accordingly we see them variously grouped; in some places crowded and extremely luxuriant, in others thin and stunted; some roots sending forth from twenty to thirty stems, two-thirds or three-fourths of which bear; others from eight to twelve, and down to four or five. Hence it is difficult to calculate the rate of produce in any one plant. Each stem sends forth from its thickened base from two to four strings or fructiferous panicles; from these issue alternately short clusters bearing from two to three ripe pods.

The

The length of the common string or stalk varies from four inches to eighteen, and is sometimes two feet; but these last extremes are not fertile in proportion. In good years, from four to six plants will yield of dried pods one *dungally*, a measure of capacity equal to four pints Winchester.

The number of plants in an Ela-Kandy they never think of reckoning. It struck me, on traversing them repeatedly, that the largest plots might contain from twelve to fifteen hundred.

The abundance of crop, from every inquiry I could make, is best ensured by a moderate routine of weather, with respect to dry and wet: the extremes of each are injurious: they dread most, however, deluging rains, particularly for the young plantations, and during the flowering season, which commences on the first fall of the rains in April and May, and continues for two months. The flower being very delicate, and the recumbent and repent posture of the fruit-panicles, exposes them particularly to the bad effects of drenching moisture. Repeated torrents, descending from above, commit their devastation by baring the roots, and sweeping away the finest portion of the mould, which furnishes a nutriment so essential to the vigour of the plants. What tends to confirm this statement is, that the natives remark a very general contrast betwixt the Cardamom and Pepper crops. The seasons favourable to the great produce of the latter are found to be adverse to the former, and *vice versâ*. Now it is well known, that, in the early part of the season, the rains cannot be too copious for the Pepper vine. In August and September, the pods increase and acquire the greatest size. In the first half of October, they begin to ripen; then the gathering of the earlier part commences; the reaping proceeds through all that month and November. A longer than usual continuance of the rainy season may protract the final gathering till the middle of December.

About

About a fortnight earlier than here stated, the Cardamoms on the western or sea-side of the Ghaûts are gathered; and to this they give the name of the *Kanni* crop, or that of the month answering to the period from the middle of September till the 15th of October: the other above the Ghaûts they style the *Wretchagau*, from the month answering in like manner to our November —December.

The prior maturity of the former is ascribed, and not without reason, to the milder temperature of the ocean cherishing the western exposure, while this gives them the full effect of the sun's beams till he sets. It is also found that, during the rainy monsoon, the intervals of fair weather are more frequent than above the Ghaûts; all which circumstances create an equability of climate favourable to the earlier production of the spice. The process of reaping keeps pace with the simplicity of the previous management. A dry day being chosen, the fruit-stalks are plucked from the roots, carried to their houses, and laid out to dry on mats placed upon a thrashing-floor: a series of four or five dry days is sufficient to complete the desiccation. The pods being extricated, by stripping with the fingers, are separated into three or four sorts, denominated from their respective qualities: 1. *Talli-Kai*, the head fruit; 2. *Nadu-Kai*, the middle; and 3. *Poulo-Kai*, the abortive fruit. The last being thrown away, the two former are mixed together; the purpose of the separation being to ascertain the relative proportions, and to render the whole uniform and marketable. They are then laid up in mat-bags made of the *Pandanus sylvestris* of Rumphius, a plant growing every where around their houses and fields. These bags are of two sizes, one holding 32 pounds avoirdupois, or a Company's *maund* in Malabar, and the other 16 pounds.

The bundles thus prepared by the cultivator are immediately

carried

carried down to shops, or little storehouses, erected by Mopla merchants, or agents, in different places along the whole range of hills, and at a little distance from the farms. Here they are subjected to another and final operation by the venders to the wholesale merchants on the coast. This consists in holding them over a gentle and slow fire in flat baskets, while the assistants continue rubbing them betwixt their hands for a certain time; which has the effect of detaching what remains of the permanent calyx and foot-stalks, or other adhering membranes, and gives the pod that appearance and marketable quality delineated in Tab. V. figs. 14 and 15. This operation is termed in Malabar *Terimbous*, a word expressive of its nature. The Cardamoms are now weighed for the purpose of ascertaining the respective quotas of rent payable by the different farmers. The result of this is expected to correspond with a previous estimation of the quantity of the crops, taken on the ground before they arrive at maturity; on the approach of which, an official deputation, consisting of public officers and some of the head men of the country well acquainted with the subject, repairs to the *Ela-Kandys*, attended by the proprietors, and there makes the calculation from the combined consideration of the extent of ground, age of the plantation, and general appearance of the fruit-stalks then in full bearing. Four or five of the visitors, whose interests are supposed to be neutral, and equally unbiassed betwixt Government and the Ryot, successively and seriously deliver their opinions; from the average of which the official attendants strike a mean, and mutual satisfaction is generally the consequence. This previous step is designed to serve as a comparative check to the measuring after the final drying of the pods, when they are expected to bear the proportion of one-fifth to the quantity of the green as before estimated.

estimated. This proportion is judged to be most favourable to the proprietors, as actual experiments prove it at least to be as 25 to 100; but Government is thus moderate, to encourage the honesty of the farmers, and to remove all inducement to its clandestine exportation. The duties, or customs, are paid only on exportation from the province by sea or land: they amount to twelve per cent., and the average price is rated at 1200 rupees per candy of 640 pounds avoirdupois.

The total produce of Wynaûd may amount, one year with another, to something above fifty candies, perhaps fifty-six; and this grows on an extent of more than 100 miles, reckoning the sinuosities and angles of the hills. The kingdom or country of the Coorja Rajah produces less by ten or fifteen candies. The whole site of the growth of this spice on the continent of Hindostan extends from the Soubramany Ghaût, nearly due east from Mangalore, to Mannaar Ghaût in the same direction from Calicut.

If nature be propitious to the progress of this valuable production from youth to maturity, she has been no less kind in providing for this last stage, in refusing to the generality of the inmates of the forest any appetite for the fruit. The natives mention only a few of the smaller animals whose depredations are felt, *viz.* two kinds of squirrels, a large and small species, and the field rats; but as they did not dwell much on the damage thence accruing, it is to be presumed that it cannot amount to much.

The evils attendant on the reaping to the Kourch-ara, Paniara, &c., who perform the labour, are much more serious. The sting of the green whip-snake, abounding in those situations, is instantly fatal, no antidote having yet been found to arrest its poison.

Fevers

Fevers and fluxes commit ravages much more extensive.—The season of reaping coincides with that when the insalubrity of the air happens to be at its highest pitch: the great heats of October, succeeding to the equinoctial rains, operating upon a drenched soil, and exhaling vapours from a profusion of luxuriant undergrowth, must accumulate a mass of *miasmata* which becomes more intensely noxious by stagnation, a circumstance of itself well known to have a tendency to corrupt or alter the healthy proportions of the respirable fluid, and thus lay a sure foundation for the diseases mentioned. A more directly painful calamity is never escaped,—that is, numerous bites of leeches (a small species of *Hirudo geometra*) whose numbers are infinite, and attacks incessant. Their size varies from two to six lines. Their minuteness and gentle mode of suction seldom engage attention or excite precaution; but, true to the ancient definition, "*non missura cutem, nisi plena cruoris*," they only fall off when glutted with blood, the copious flow of which at length indicates the authors. The simple consequence of these would be otherwise little felt, were it not for the abundance of a small shrubby plant, whose leaves are so acrid, or rather caustic, as to inflame by simple contact the sound skin for more than a day, as I experienced in myself; and if they touch a wound made by the leeches, the inflammation is sure to increase; and most frequently extended ulcerations, phagedenic in their progress and fatal in their termination, succeed, the symptomatic fever excited running so high as to carry off the patient, who conceives himself happy if he escape with only a contraction of the member or muscles thus affected. The name of the plant in question is *Mouricha*, denoting in Malabar its cutting or acrimonious quality. It is from eight to twelve feet high, with large leaves acutely oval and subserrated; trunk from two to three

 inches

inches in diameter. The absence of flowers prevented its genus being ascertained.

Though the natives of both Wynâad and Coorga affirm that the situations at present, and from time immemorial, producing Cardamoms, are the only places where they will thrive; yet, as they assign no reason for this, nor mention any experiments having been made to prove the fact, we have every right to doubt their testimony, and refer their opinion to those habits of indolence and local prejudice, which characterize the peasantry in most countries, and which beget in them a stupid aversion from all schemes of innovation and improvement. This sceptical suggestion receives great strength, if not confirmation, from a series of facts which have come under my own observation. The following is their history:

In October 1802, when the rebellion broke out afresh in Wynâad, I accompanied the first force sent to quell it. We fortified different points at the top of the Ghaûts, some in the neighbourhood of Cardamom ground, others where no farms had ever been established or thought of. Of this last description was a post at the top of Cottiour Ghaût. Besides clearing away the grounds adjacent, a great many broad alleys, leading from the redoubt in various directions through thick and lofty trees, down and around the hills to Darallour, (another stockade two miles further inland,) were cut and cleared from grass and underwood by the pioneers. All these places I had the good fortune to revisit the first ten days of this month (October 1806), and was much gratified and interested by finding great abundance of the Cardamom plant growing luxuriantly, and bearing in a proportion equal to what I immediately afterwards observed at the Peria Ghaût. No further labour had been bestowed on them after our departure; and the similarity of shade and ex-

posure,

c
b
a

posure, from the largest trees being left standing here and there, had produced the same effects as elsewhere. In the very middle of the stockade, and on the site of the barracks, I had the curiosity to reckon the assemblage of stems on two plants, one of which sent forth twenty-six and the other thirty-two, both fertile in the usual proportion. I found likewise that high summits and steep declivities were alike favourable to the prosperity of the plants; for the stockade itself was built on the declivity of a high range, and the alleys mentioned led in various windings down the steepest slopes.

All this ought to convince us, that experiments judiciously instituted, and properly prosecuted, are alone wanting to extend the Cardamom farms over a much larger space; and that moreover, by the knowledge acquired in the course of this experience, we should most probably attain to some essential improvement in the modes of cultivation at present adopted.

REFERENCES TO THE FIGURES.

Tab. IV.

A Cardamom plant about three months old, one-fourth of the natural size.

a, *b*. Two viviparous scions springing from its base.

c. The involuted leaf before evolution.

Tab. V.

Fig. 1. exhibits a full grown Cardamom plant, its stems cut off a little above the third of its height, which was 12 feet: base of stems immediately above the rings from 2½ to 3½ inches in girth. Its roots depending in their natural habit, pro-

 portion,

portion, and colour. *a, a, a,* the tuberous ringed part immediately above ground, with the curved shoots *b, b, b, b,* germinating, the common peduncle with its pedicles and partial frugiferous pedicels.

Fig. 2. The partial panicle with its germs and flower viewed in front. *a, a,* the double calyx. *b, b,* the spathous bracts. *c, c, c,* the three divisions of the outer and lower border of the corolla, the middle largest, and their extremities turned up slipperwise. *d,* the second or staminiferous division: at the base of this the hornlets seem to project from the mouth of the tube horizontally. *e,* the expanded rhomboidal division of the upper border, with its pinky ramification.

Fig. 3. The back view of the corolla. *b,* the germen. *c, c,* the projecting pair of hornlets, i. e. 3d and 4th divisions of the upper border.

Fig. 4. The tube only of the corolla, with the inner calyx, hornlets and stamen bearing division of the upper border. *a, b,* show the two pair of antherous lines in situ, and the sheath above for the stigma *c,* this last being turned to one side.

Fig. 5. The same without the calyx. The second division and hornlets a little magnified. The anthers *a, a,* raised up and deflected, to show the sheath more fully.

Fig. 6. The second division *a,* of the upper border magnified, showing the upper part of the style stigma and anthers in situ, lying on its inner surface, and the style ascending through the orifice *b* of the tube, straitened by the bulging basis of the hornlets.

Fig. 7. 8. The naked pistilla, one with the germinal appendices *a* a little separated, the other with the same in situ.

Fig. 9. A half-grown germen, with the persisting inner calyx, and its 3-dentate border *b,* and germinal appendices *a.*

Fig.

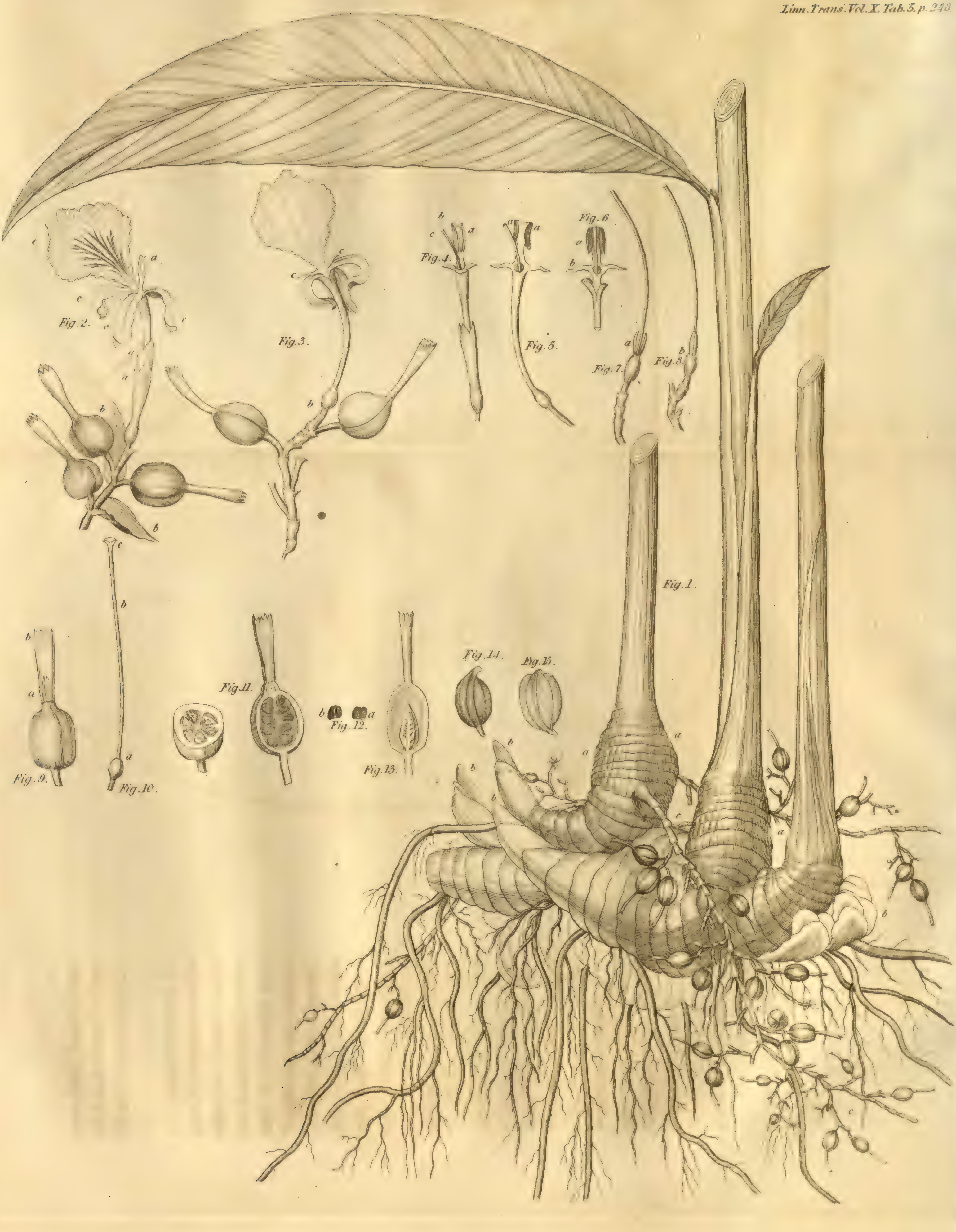


Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
Fig. 9.
Fig. 10.
Fig. 11.
Fig. 12.
Fig. 13.
Fig. 14.
Fig. 15.

Fig. 10. The naked pistillum a little magnified, showing the conical base of the style *a*, thickening again at *b*, and the expanded stigma.

Fig. 11. Longitudinal and transverse sections of the full-grown pericarpium, as it is taken from the plant, and before drying.

Fig. 12. Two seeds a little magnified, *a* the convex side, *b* the flat grooved one.

Fig. 13. The bare capsule, one side removed to show the triangular rachis or seed-receptacle, with one of the eight-toothed belts or fasciæ lining one of its angles—viewed in front.

Fig. 14. 15. The Cardamom pod, as it comes to market from the drying processes.

Additional Remarks by William George Maton, M.D. V.P.L.S. &c. &c.

IF the author of the foregoing valuable communication had been conversant with Mr. Roscoe's arrangement of the *Scitamineæ* (in the 8th volume of The Linnean Transactions), it is most probable that he would not have referred the plant producing the Malabar Cardamom to the genus *Amomum*, notwithstanding it has hitherto been placed under that appellation by most other botanical writers.

The filament, or antheriferous petal, of *Amomum* (according to Mr. Roscoe) extends beyond the anthera, and terminates in three lobes; whereas, in the plant so fully described and minutely figured by Mr. White, the anthera is of equal length with the filament, and appears to be somewhat emarginated, the notch receiving the obtusely triangular stigma. Neither can this plant be considered

considered as an *Alpinia*, or an *Hellenia*, without great violence to its natural characters, for the inflorescence issues horizontally from the tuberous, annulated part of the stem, near the root; but in the *genera* just mentioned it is terminal, from the extremities of the leafy shoots,—a difference (as Mr. Roscoe also remarks, in a letter with which he has favoured me on this subject) too great to be made a mere *specific* distinction; and I cannot help suspecting that the fruit, likewise, will be found to be different, though my opportunities of investigation have not been sufficient to warrant my being confident on this point. From *Philydrum* there is a sufficient distinction in the absence of the woolly appendage at the base of the tube, and from *Hedychium* in the anthera not being placed marginally on the filament. According to Mr. Roscoe, all the *Renealmiæ* (except *R. exaltata* perhaps) are reducible to the genus *Alpinia*, their inflorescence being terminal; and the description of *R. exaltata*, as given in the *Supplementum Plantarum*, cuts off that plant from a generic alliance with the Cardamom, the fruit of the former being a cylindrical *bacca*, containing seeds perfectly smooth.

Hence it seems necessary to place the Cardamom under a new genus, to which I propose to affix the name of ELETTARIA, from *Elettari*, the original Malabar appellation, as given in the *Hortus Malabaricus*. I cannot help considering it as premature to attempt to draw its botanical characters in a regular manner, until opportunities are afforded of comparing this plant, in the different stages of fructification, with its congeners, particularly *Amomum* and *Alpinia*, of which perfect specimens in a living state ought to be carefully investigated, before any discriminations can be satisfactorily established. In the mean time, it may be of some importance to collate the figures and descrip-

tions

tions given by various authors, and to extricate from the unaccountable confusion, in which the botanical history of the Malabar Cardamom has been involved, such synonyms as ought to accompany it in its future station in the *Species Plantarum.*

What the Cardamom of the ancients was, it is now scarcely possible, I think, to determine, so imperfect are the notices of it which they have left behind them. There is good reason to suppose however, that the article bearing that name in their *Materia Medica*, was not the common Cardamom of our shops. Both Clusius and John Bauhin appear to have been convinced of this, and to neither of these early authors, nor indeed to Caspar Bauhin, are we to ascribe any of the inaccuracies that have found their way into later descriptions of this celebrated aromatic; but the plant producing it was not satisfactorily made known, until the publication of the *Hortus Malabaricus*, in which the delineation of it is so striking that we cannot but wonder at all perplexity, as to its prominent characters, not having been then precluded. Yet Burmann, though he had probably seen a specimen of the true Cardamom in Hermann's herbarium, and though he expressly asserts that the *Ensal* of the last-mentioned author agrees with Van Rheede's figures of the *Elettari*, and with Clusius's description and figure of "*Cardamomum minus vulgare*," (lib. 1. *Aromat.* c. 24.) makes a reference to Bontius's Java (p. 126) for the same species. Bontius, it is true, places by the side of his plant the *capsule* of the Malabar Cardamom, but, the plant itself is represented with a simple, compact spike, and seems to be no other than *Amomum compactum*, (of Solander's MSS.) or the Cardamom of Java*. In justice to Burmann,

* Specimens and a sketch of this species (the latter made on the spot, when Sir Joseph Banks was in the island of Java,) I have had opportunities of examining in the Banksian library.

however,

however, I ought to mention, that Commelin was guilty of the same error before him, referring to Bontius's *Cardamomum minus* as being the same as Van Rheede's, in his *Horti Malabarici Catalogus*, p. 18.

From the mistake made by Burmann appear to have originated the erroneous description and discordant references given, on the subject of the Cardamom, in the works of Linnæus, and which have partly descended to some of his editors. If, in writing his *Flora Zeylanica*, Linnæus had found a specimen of the *Ensal* in Hermann's herbarium, or if he had consulted the figures of Van Rheede, the errors, which commenced with that *Flora*, could not, I think, have existed. That there was *not* a specimen of the *Ensal* in the herbarium of Hermann, I have actually ascertained, having examined that collection on purpose; and that Linnæus had not an opportunity of verifying Burmann's references, by consulting the *Hortus Malabaricus* at the same time with the other works quoted by that author, is rendered highly probable, on account of his not having been possessed of the work, for which he was obliged to send to the Academy of Sciences at Stockholm (as I am informed by Mr. Dryander) whenever the use of it was indispensable to him. Neither had he any specimen of the true Cardamom in his own herbarium, that which he seems to have considered as such having a compact spike, though it is labelled as being "from Surat," whence he could not have received it until some time after the publication of his *Flora Zeylanica*, and *Materia Medica;* for he had no correspondent (I imagine) in that part of India, prior to his pupil Toren's voyage, in 1750. Toren mentions having been at Surat; but it is wonderful enough that he does not enter upon any description of so remarkable a plant as the Cardamom, which he probably would have done, had he seen it growing;

and, as we find that he sailed immediately afterwards to Java, it is not an unreasonable conjecture, that he may have sent home Bontius's plant from that island, and that the specimen, through some hurry either of the collector himself, or of his master, when it arrived in Sweden, may have been wrongly noted as being from India. Be this as it may, it is clear that Linnæus has confounded the Javanese Cardamom with that of Malabar, having quoted both Bontius and Van Rheede as synonyms, and not only tab. 4 and 5 (vol. 11.) of the latter, but also tab. 6, which confirms the supposition of his having copied Burmann's reference upon trust at that time, for Burmann had been guilty of the same error. We find Linnæus adding to all this inaccuracy, by quoting also Barrclier, 1396, tab. 571, which plate is obviously copied from the figure entitled "*Amomo legitimo degli antichi*," and prefixed to Marogna's commentary on the subject, accompanying Pona's "*Monte Baldo descritto.*" The pharmaceutical synonym (subjoined to the others) of "*Cardamomum minus*" precludes all doubt of his intending to point out the plant which produces the common Cardamom of our shops. The *Flora Zeylanica*, however, is known to have been written in haste, and its author discovered some of the mistakes into which he had been led, before he published his *Species Plantarum*, because he there discards many of his former references, but amongst these, unfortunately, tab. 4 and 5 of the *Hortus Malabaricus*, retaining only tab. 6. This last-mentioned error is unaccountable, for the very same plate is referred to by him for *Amomum Granum Paradisi* (with which it will probably be found to agree very well); and it is curious to observe that this gross inaccuracy exists also in his editor Reichard. To complete the confusion of our illustrious author in regard to the Cardamom, in his second edition of the *Species Plantarum* he

 not

not only retains the erroneous reference to Van Rheede's tab. 6, but adduces also, as a synonym, "*Cardamomum minus*, Rumph. Amb. 5. p. 152. t. 65. f. 1," than which nothing can worse correspond with the Cardamom of Malabar. Moreover, he changes his description, (which, in the first instance, was at least ambiguous,) and stamps the species with the character of "*scapo simplicissimo, brevissimo*," which is contradicted by his very reference to Van Rheede! Some of this confusion has been removed by the laborious Willdenow, who, very properly, separates the references to Linnæus's *Flora Zeylanica*, Van Rheede's tab. 4 and 5, and Hermann's *Museum Zeylanicum* 66, from the characters in the 2d edition of the *Species Plantarum* and from the *Cardamomum minus* of Rumphius, placing the former set of synonyms under Sonnerat's name of *Amomum repens*, and the latter under the original name of *A. Cardamomum*. But, as I have before remarked, the Malabar Cardamom cannot now, consistently with the new arrangement of Mr. Roscoe, be considered as belonging to that genus; and (with all due respect for the high authority of the Berlin editor) I cannot consider it proper to attach the original trivial name of *Cardamomum* to the plant *not* producing the article bearing this appellation in the shops, and which plant will probably prove to be no other than the *Amomum compactum* of Solander. These observations apply also to the *A. Cardamomum* of Mr. Roscoe.

The following is the result of my endeavours to ascertain the true synonyms of

ELETTARIA Cardamomum.

Cardamomum minus. *Clusii de Aromat.* lib. 1. c. 24. p. 187. *Matthiol. sur Diosc. (Pinet)* p. 6. *Bodæi Annot. in Theophrastum*, p. 1014. fig.

Cardamomum

Cardamomum cum siliquis sive thecis brevibus. *J. Bauhini Hist. Plant.* tom. 2. lib. 15. p. 205.

Cardamomum simpliciter in officinis dictum. Cardamomum verum, Angl. *C. Bauhini Pinax*, p. 414.

Elettari. *Van Rheede Hort. Malab.* vol. 11. p. 9. t. 4. 5.

Cardamomum Ensal dictum. *Burmanni Thes. Zeyl.* p. 54.

Cardamomum minus officinarum. *Dale Pharm.* p. 276. *Geoffroy Mat. Med.* p. 368. *Linn. Mat. Med.* p. 2.*

Amomum repens. *Sonnerat Voy.* tom. 2. p. 240. pl. 136. *Roscoe, in Act. Soc. Linn.* 8. p. 353.

Angl. Lesser Cardamom.

* In Schreber's edition of this work, the characters of the Malabar Cardamom are (erroneously) taken from the 2d edition of the *Species Plantarum*, with references to the discordant figures of Van Rheede and Rumphius.

VII. *Some Account of the Herbarium of Professor Pallas. By Aylmer Bourke Lambert, Esq., F.R.S. and A.S., V.P.L.S.*

Read December 20, 1808, *and March* 21, 1809.

THE Herbarium of the celebrated Professor Pallas has lately come into my hands. It was brought to this country from Russia by the well known travellers Dr. Clarke and Mr. Cripps, who purchased it of him while on a visit at his house in the Crimea, and afterwards, in May 1808, sold it by auction in London.

It contains some thousands of specimens in very fine preservation, especially those which belong to the Russian empire, collected in his various journeys undertaken to investigate and publish the Natural History of that extensive country. The plants are the best prepared of any I have ever seen, except a collection a few years ago from Cayenne, taken from the French, who excel so much in their manner of preparing their collections of Natural History in the countries they explore; and who have of late years brought home so many valuable ones from New-Holland, and from countries within the tropics.

It also contains many hundreds of specimens given to Pallas by various celebrated botanists. George Forster, who accompanied his father with Captain Cook in his second voyage round the world, and who afterwards was engaged by the Empress Catherine to join in a similar expedition, which never took effect, sent

sent to Pallas fine specimens of all the plants gathered during his voyage with Cook. I find several species here not in his own Herbarium, which I purchased some years ago from his father-in-law Professor Heyne.

All the plants collected in Billing's expedition, by Dr. Merke, the naturalist employed in that voyage, and others, appear to be here; but I have not been able to find among them a celebrated plant mentioned by Sauer in his account of that expedition, and called there *Zemlenoi Laudon,* or frankincense of the earth, (see page 28,) unless it be *Cachrys odontalgica.* Sir Joseph Banks sent Pallas a fine collection of specimens, which were collected by him and Dr. Solander in their celebrated voyage with Captain Cook. There are also a great number of species from Professor Thunberg, and Grecian plants from the late much lamented Dr. Sibthorp. Among these is the true Hellebore of the ancients, found by him on mount Olympus, the *Helleborus officinalis* of Dr. Smith's *Prodromus Floræ Græcæ.* I find also many plants of the *Flora Austriaca* from Jacquin, and several of Forskahl's, communicated by Vahl. Cavanilles appears to have sent to Pallas many plants from Spain. Here is also a curious collection from Persia, made chiefly in the neighbourhood of Gilan by Gmelin; and in it I observe the *Ferula assafœtida,* but without fructification. There are many specimens of Russian plants from Gmelin, Georgi, and others, all named and numbered according to their works, and having synonyms of the older authors prefixed: also from Steller, with names and numbers from his unpublished *Flora Ochotensis* and other MS. works mentioned by Pallas in the preface to his *Flora Rossica.*

Pallas's plants of his own collecting are very rich in duplicates; of some there are as many as fifteen or twenty, in every state he could find them both in flower and fruit; and whenever

he

he discovered the same species altered by soil or situation, he seems never to have neglected preserving it. Every specimen is named in his own hand-writing, and the habitats noted, sometimes with observations: as for instance, with respect to his *Phlomis Herba-venti*, of which Willdenow makes a new species *Ph. pungens*, he observes that a decoction of this plant is used by the Russians as one of the best means of hardening steel. In this Herbarium I find the greatest part of the plants figured in the *Flora Sibirica* of Gmelin; several very good specimens of that fine plant *Campanula punctata;* and those figured in Amman's *Stirp. Rarior.* with *Cypripedium guttatum*, which our President informed me he had never been able to find in any other collection. The plants of *Flora Rossica*, and those of Pallas's Travels; all his *Astragali* and *Salsolæ*, and all the plants collected in his last tour in the Crimea are here, besides a great number of new species not noticed in any of the above-mentioned works, and which no doubt he intended to have published in the continuation of that splendid work the *Flora Rossica*, of which plates have been already engraved sufficient, as I understand from Dr. Clarke, to make another volume; and which, I hope, will soon make its appearance, as it only waits for some bookseller to undertake it: some of these plates are already cited by Professor Georgi in his *Beschreibung des Russischen Reichs.* I find Pallas, in the MS. to some of his specimens, has changed their names from those published in some of the volumes of the Petersburgh Transactions, and in his own Travels, but for what reason I know not. He calls *Phlomis alpina*, *Leonurus altaicus;* and *Solidago palmata*, in the French edition of his Travels, by Lamarck, in a note vol. vi. page 399, appears again in the same volume page 166, under the name of *Senecio palmatus*, and in his Herbarium by that of *Senecio davuricus;* so that it requires some time and pains to make out his species.

fig. 2
fig. 1.
Lobelia sessilifolia.
Pentstemon frutescens.
a
b
c

species. Of *Moluccella grandiflora* of the *Species Plantarum* by Willdenow, which is *M. diacanthophylla* of Pallas in *Nov. Act. Petrop.* vol. x. page 380, table 11, the very specimens from which the figures seem to have been made, are named in his MS. *Moluccella quadrangularis, species nova e deserto Buscarico.* A plant which he describes in the Appendix to his Travels as *Planta Salsa*, &c., and supposes it to be a *Cacalia*, I have not been able to discover as yet, unless he has placed it in another genus, which is most likely, or that somebody is more fortunate than myself in the possession of it. Lamarck observes in the preface to Pallas's Travels, that he mentions the same plants repeatedly, even the most common ones,—which certainly is sometimes the case; because, perhaps, he thought that they would be better understood by the generality of his readers, and did not like to give details of new species there, which he intended to publish in a work devoted to that purpose. As I am preparing to give a catalogue of all the species found in his Herbarium, with the observations I there find in MS., I shall now only submit to the Society an account of some of the most remarkable species that I have already noticed; and express a hope that in future every botanist sent on similar expeditions may execute his charge with as much assiduity as Pallas has done, and bring us home as extensive collections.

PENTSTEMON FRUTESCENS.

Tab. VI. Fig. 1.

Pentstemon caule frutescente ramoso.

Digitalis Dasyantha. *Pall. MSS.*

Habitat in Camtschatkâ et Unalashka. *Pall. MSS.* ♄.

LOBELIA

LOBELIA SESSILIFOLIA.

TAB. VI. Fig. 2.

LOBELIA caule herbaceo folioso glabro simplicissimo, foliis oblongo-lanceolatis serrulatis sessilibus utrinque nudis, pedunculis axillaribus folio brevioribus.

Lobelia camtschatica. *Pall. MSS.*

Habitat in Camtschatka. *Pallas.* ♃.

This singular species has so much the habit of some species of *Euphorbia*, that without fructification it might easily be mistaken for one of that genus. The stems are above a foot in height, without any sort of pubescence, round, shining, and striated; naked towards the base, and marked with a few scars from the fall of the leaves, which are of a dull green, with their edges finely serrated, conspicuously veined on their lower side, but nearly veinless above, and appear to be affixed in a spiral direction.

PHELIPÆA.

Tourn. Cor. p. 47. *t.* 479. *Desfont. in An. Mus. Hist. Nat.* 10. *p.* 298. *t.* 21. *Juss. in An. Mus. Hist. Nat.* 12. *p.* 445.

PHELIPÆA FOLIATA.

TAB. VII.

PHELIPÆA caulibus parcè foliatis simplicibus unifloris, corollæ laciniis subovatis.

Orobanche Phelypæa. *Marsch. v. Bieberst. Terek und Kur*, in *Kœn. An. Bot.* 2. *p.* 447. synonymo Tournefortii excluso.

O. coccinea. *Willd. Sp. Pl.* 3. *p.* 354. sine synonymo Tournefortii.

Lathræa Phelypæa. *Pall. MSS.*

Habitat in monte Caucaso et Tauriâ. *Pall. MSS.* ♃.

This

Phelipæa foliata.

This new addition to the Genus *Phelipæa* of Tournefort, again re-established by Desfontaines from his MSS. and the original drawing of Aubriet in the Museum of Natural History at Paris, and confirmed by the authority of Jussieu, throws considerable light upon the character of that curious genus; and is the more interesting, that no specimens of the *Rhelipæa Tournefortii* now remain in his Herbarium, or are known to exist in any other collection.

The specimens of *Phelipæa foliata* in the Pallasian collection rise from a short scaly root a little fibrous below, to from ten to eighteen inches in height; the stems striated and a little flexuose, leafy towards the base, but naked a considerable way below the flower. The specimens from Caucasus, when magnified, appear a little villose; those from Tauria are shining, and without any sort of pubescence. The calyx is bilabiate, with the upper lip three-cleft, the divisions approaching each other and a little incurved; the under lip is deeply two-parted, with the divisions more obtuse and longer than in the upper lip. The tube of the corolla is curved, the limb bilabiate with the upper lip two-parted, the divisions nearly oval, and the lower lip three-parted and considerably longer. The filaments are broad, compressed and approaching in pairs, two of them considerably shorter, and are inserted in the tube of the corolla. The anthers are large, with two cells, and of a shape nearly resembling a heart inverted with a double point. The style is round and incurved; the stigma very large, and nearly hemispherical. The capsule is oval, with the seeds affixed to four fleshy branched receptacles adhering longitudinally to its sides, and ramifying throughout the whole of its interior, but without appearing to unite with one another. The seeds are very small, nearly oval, shining, and exceedingly numerous, covering every lobe and sinus of the receptacles.

 This

This curious structure of the fruit confirms the close affinity before suspected by Jussieu to exist between *Phelipæa* and the *Æginetia* of Linnæus* and Roxburgh†, the capsule of which is described by the latter as having *a number of convoluted laminæ throughout, between which are lodged innumerable most minute seeds*, and may possibly be nearly of the same construction as in *Phelipæa*, although the entire sheathing calyx and regular corolla in *Æginetia* are abundantly sufficient to distinguish the two genera.

In addition to the foregoing account of Pallas's Herbarium, I now beg leave to mention that I have since discovered in it fine specimens in fructification from that celebrated Palm growing in the garden at Berlin, which Linnæus calls *Phœnix dactylifera*, the Date Palm, in his Dissertation on the Sexes of Plants. See Dr. Smith's translation of that work, page 51. Our President also mentions it in his Introduction to Botany, page 321, saying in a note, "What species of Palm was the subject of this experiment does not clearly appear. In the original communication to Dr. Watson printed in the Preface to Lee's Introduction to Botany, it is called *Palma major foliis flabelliformibus*. Ait. Hort. Kew. vol. 3. 473. Yet Linnæus, in his dissertation on the subject, expressly calls it *Phœnix dactylifera*, the Date Palm, and says he had in his garden many vigorous plants raised from a portion of the seeds above mentioned. The great success of the experiment, and the 'fan-shaped' leaves, make me rather take it for the *Rhapis*, a plant not well known to Linnæus." Now it appears

* Sp. Pl. ed. 1. p. 632.

† Plants of the Coast of Coromandel, i. p. 63, tab. 91.

from

Chamaerops humilis Linn.

from Pallas's specimens sent to him from Berlin (above mentioned) to be the *Chamærops humilis* Linn., and that variety which is said to grow twenty feet high. Willdenow, in his Preface to the *Hortus Berolinensis,* also considers it to be that plant. Two labels accompany the specimens, with the following inscriptions on them:

"Chamærops* arborea feminea. Palma nostra in H. R. Berolinensi culta, per fœcundationem artificialem ab Ill. Gleditsch instituta, maxime celebrata.

"Soboles exinde ortæ ad 3 pedum altitudinem fere accedentes in eodem viridario aluntur sub matris umbra."

A sketch from one of the specimens is annexed, Tab. VIII. Whether the two supposed varieties may not be distinct species, we must leave to those botanists who have an opportunity of observing them where they grow.

On further examination of this Herbarium, I have found some more new plants, and others but very little known, which I beg leave to lay before the Society. The greater part of the plants found by Sievers in his journey to discover the true Rhubarb, and by him communicated to Pallas, are in this collection. One of the most remarkable is the *Robinia jubata,* first published in the *Nova Acta Academiæ Scientiarum Imperialis Petropolitanæ;* also more perfect specimens of the same sent by the Governor of Irkutsk at Pallas's request, and from which the superb figure in Pallas's *Species Astragalorum,* tab. 85, was taken: these are nearly three feet in length, and in excellent preservation. *Rheum nutans, sibiricum* and *caspicum* also of the *Flora Rossica,* vol. 2, quoted

* "Chamærops No. 4. Chamær. arborea feminea. L. p. 1657."

 by

by Professor Georgi in his *Beschreibung des Russichen Reichs*, but yet unpublished; a new species of Rumex, *R. graminifolius* of Professor Rudolph, whose specimens of it I have also received through the kindness of my friend Dr. E. D. Clarke, of Cambridge; the beautiful and rare *Lilium camtschatcense* of Linnæus; a remarkable new species of *Vaccinium* which we had before heard of, and been long anxious to see. The following note affixed to the plant by Professor Rudolph, from whose Herbarium I received it, (there being no specimen of it in the Pallasian collection,) contains all that we yet know concerning it: "*Vaccinium præstans.* Hocce Vaccinium a nemine hucusque est visum. Crescit in remotissimo deserto, et in unico loco et paucissimis incolis Kamtschatkæ tantummodo noto. Baccæ perquam grate sapidæ sunt. Specimina cum floribus nequisquam, quamvis 100 rubelonum pretium oblatum fuit, ausus est colligere." The following specific character will, I trust, distinguish it from its congeners.

VACCINIUM PRÆSTANS.

VACCINIUM caule humile adscendens, foliis magnis obovalibus serrulatis ciliatis venosis, fructu subgloboso amplissimo. ♄.

A sketch from the specimen is annexed, Tab. IX.

For the Rumex I here propose the following specific character.

RUMEX GRAMINIFOLIUS.

RUMEX foliis gramineis lævibus integerrimis: vel lacinulis duabus oppositis appendiculatis.

TAB. X.

R. graminifolius. *Georgi Besch. Russ. Reichs. p.* 921, sine nota. Habitat in Kamtschatkâ ad mare glaciale. *Rudolph.* In insulis Curilis. *Pallas.* ♃.

The

Vaccinium praestans.

Rumex graminifolius.

Lilium camtschatcense Linn.

The specimens of *Lilium camtschatcense*, of which a figure is annexed, Tab. XI., vary in length from six to eighteen inches, with the upper leaves alternate, and the lower in whorls, generally by fives; but sometimes by threes, or in opposite pairs towards the top. The roots are very remarkable, being composed of little tubers or grains, imbricated round a central pillar, like the grains of Maize, only much smaller, with a few branched fibres at the base. The flowers are terminal, and vary in my specimens from one to three on each stem. It has already been supposed to be a species of *Fritillaria*, and the specimens seem to confirm the conjecture, as the short stamens, large recurved stigmas, and very short style, accord much better with that genus. What may be the situation or form of the nectaries I have not been able to discover.

VIII. *Some*

VIII. *Some Remarks on the Synonyms and native Country of Hypericum calycinum. By J. E. Smith, M.D., F.R.S., and P.L.S.*

Read March 21, 1809.

Towards the end of last August I received from Mr. Hincks, Secretary to the Cork Institution, a specimen of *Hypericum calycinum*, gathered, by Mr. Drummond, Curator of the botanic garden near that city, about three miles from Cork in the road to Bandon, where these gentlemen assure me the plant in question grows wild in great abundance. This communication led me to investigate the reputed places of growth of this species, as well as of the *Hypericum Ascyron*, with which Linnæus and some other botanists have confounded it. This confusion was first publicly corrected in the *Hortus Kewensis, v.* 3. 103, where the synonyms of the *calycinum* are rightly given. Two years afterwards Mr. Curtis published this plant in his *Magazine, v.* 5. *t.* 146, judiciously adopting the corrections in the *Hortus Kewensis*, but relapsing into an old error in quoting Bauhin's *Ascyrum magno flore.* The occurrence of this quotation chiefly excited in my mind a desire to investigate the whole subject; for I must honestly confess that, as Bauhin's plant was gathered by Burser on the Pyrenean mountains, I should have been glad to have found it the same with our Irish one, as confirming the wildness of the latter. My first object therefore was to determine the plant of

of Bauhin, described in his *Prodromus, p.* 130, from Burser's specimen, and therefore to be ascertained by the herbarium of the latter at Upsal. On turning to Linnæus's own copy of Bauhin, I found a mark indicating that he had made this inquiry, and the result is recorded in an unpublished manuscript note in the first edition of his *Species Plantarum* to the following effect: "The true Linnæan *Hypericum Ascyron* is the same with that of Burser. Its stem is perfectly straight and altogether herbaceous. If therefore the plant of Wheeler be shrubby and inclining, it is certainly another species."

In consequence of this discovery of Linnæus, the synonym of Wheeler is not given under *H. Ascyron* in the second edition of *Sp. Pl.*, though that of Morison is still retained, Linnæus not having perceived that Morison figures Wheeler's plant, while the latter part of his description only belongs to it, the former being transcribed from Bauhin's *Prodromus.* Such faults are common in writers who work on the plan of Morison, and he errs also in mentioning Mount Olympus as the place where Sir George Wheeler gathered his plant. But though Linnæus rejected Wheeler's synonym for his *H. Ascyron*, he has not either referred it to any other old species, nor described it afresh as a new one, at least in the *Sp. Plantarum.* In his *Mantissa* indeed, *p.* 106, he has described the species in question by the new name of *Hypericum calycinum*, but without any synonym; and he had now so totally forgotten his former note, and the reference to Wheeler's *Journey*, that he gives North America, with a doubt, as the native country of his *calycinum.* This was a mere guess, devoid of all foundation. The specimens of this species in his herbarium appear to be garden ones; so does the original authentic one of his *H. Ascyron*, though to the latter he has pinned a plant raised by Gronovius from Pennsylvanian seed, which is *H. pyramidatum* of *Hort. Kew.*

recently

recently figured by Ventenat in his splendid *Jardin de la Malmaison*, *t.* 118; as well as two wild Siberian specimens of the plant figured by Gmelin, *v.* 4. *t.* 69. This last figure is quoted in the second *Mantissa*, *p.* 455, for *H. Ascyron*, which Gmelin thought it to be, perhaps rightly; but the calyx is much larger than usual, and very unequal, so as to raise a doubt in my mind. The main point, however, respecting our present inquiry is established, that the true *H. Ascyron*, which is the *Ascyron magno flore*, *Bauh. Pin.* 280, *Prod.* 130, is a native of the Pyrenees; perhaps also of moist meadows in Siberia. My next object was to ascertain what Tournefort understood by the above phrase of Bauhin, adopted in his *Institutiones Rei Herbariæ*, 256, under which he quotes Morison, who, as I have said, confounds two species together. This question is decided by Tournefort's *t.* 131, *f.* 2, evidently drawn from *H. Ascyron* and not from *H. calycinum*, which last it appears Tournefort never knew, otherwise he could not have passed it over. The next botanist after Sir George Wheeler who gathered *H. calycinum* wild was the late Professor John Sibthorp, who found it in the woods about the village of Belgrad near Constantinople, no doubt the same place where Wheeler first discovered it. The situation is not unlike that near Cork where Mr. Drummond found our specimen, sheltered, and of no considerable elevation, with a southern exposure towards the sea. Dr. Sibthorp has left a figure of this plant for the *Flora Græca*, which is one of Mr. Ferdinand Bauer's most exquisite drawings; but he mistook it for *H. Ascyron*, and has therefore quoted Tournefort's synonym above mentioned. No other plant in this writer's *Institutiones* or *Corollarium*, as far as I can discover, can possibly be referred to *H. calycinum*. Ventenat determined his *Ascyrum erectum, salicis folio, magno flore*, *Inst.* 256, by Jussieu's herbarium, to be *H. pyramidatum*.

It

It seems therefore that *H. calycinum*, though so commonly cultivated in the English gardens and shrubberies, to which Sir George Wheeler introduced it in 1676, has not been found wild in any other part of the world than at Belgrad near Constantinople, and between Cork and Bandon in Ireland; two situations, though remote from each other, and differing about ten degrees in latitude, not unlike with respect to their exposure. We know moreover, by daily experience, that the plant under consideration is able to bear a much colder climate than either. In consequence of the above discovery, the *Hypericum calycinum* will make the first plate in the 29th volume of *English Botany*.

Norwich, March 15, 1809.

IX. *Notes relating to Botany, collected from the Manuscripts of the late Peter Collinson, Esq., F.R.S., and communicated by Aylmer Bourke Lambert, Esq., F.R.S. and A.S., V.P.L.S.*

Read April 18, 1809.

Being lately on a visit to John Cator, Esq., of Beckenham-Place, and looking one day over his library, amongst a collection of books left him by his uncle, who married the daughter of the celebrated Peter Collinson, I discovered several which had formerly belonged to that eminent naturalist. One of them was his own copy of Miller's Gardener's and Botanist's Dictionary, the last edition published by the author, with the following note at the bottom of the title page: "The gift of my old friend the author to P. Collinson, F.R.S." This book contains a great deal of his manuscript notes relating to the plants cultivated in those days, both in his own gardens and in those of the most celebrated of his contemporaries; with a complete catalogue of the plants he had cultivated in his garden at Mill-Hill, and a list of all those which he had himself introduced into this country from Russia, Siberia, America, and other parts of the world; also some original letters from Dillenius, Miller, Bartram, and others; and a short account of his own life, which appears not to have been known to his biographers. Mr. Cator having obli-

gingly permitted me to take a copy of the whole, I now submit to the Linnean Society those parts which I think most worthy of their notice. A. B. L.

I WAS born in the house against Church-Alley, Clement's Lane, Lombard-Street, from whence my parents removed into Grace-church-Street, where I have now lived many years. [July 18th, 1764.] Gardening and gardeners have wonderfully increased in my memory. Being sent at two years old to be brought up with my relations at Peckham, in Surry; from them I received the first liking to gardens and plants. Their garden was remarkable for fine cut greens, the fashion of those times, and for curious flowers. I often went with them to visit the few nursery-gardens round London to buy fruits, flowers, and clipt yews in the shapes of birds, dogs, men, ships, &c. For these Mr. Parkinson in Lambeth was very much noted, and he had besides a few myrtles, oleanders, and other evergreens. This was about the year 1712. At that time Mr. Wrench, behind the Earl of Peterborough's at Parson's Green near Chelsea, famous for tulip-trees, began the collecting of evergreens, arbutuses, phillyreas, &c.; and from him came the gold and silver hedgehog-holly, being accidental varieties from the hedgehog variety of the common holly. He gave rewards to encourage people to look out for accidental varieties from the common holly; and the saw-leaved holly was observed by these means, and a variegated holly goes by his name to this day. He and Parkinson died about the year 1724. Contemporary with them were Mr. Derby and Mr. Fairchild; they had their gardens on each side the narrow alley leading to Mr. George Whitmore's, at the further end of Hoxton.

 As

As their gardens were small, they were the only people for exotics, and had many stoves and green-houses for all sorts of aloes and succulent plants; with oranges, lemons, and other rare plants. At the other end of the town were two famous nurserymen, Furber and Gray, having large tracts of ground in that way, and vast stocks; for the taste of gardening increased annually. Doctor Compton, bishop of London, was a great lover of rare plants, as well such as came from the West Indies as from North America, and had the greatest collection then in England. After his death the see was filled by Bishop Robinson, a man destitute of any such taste, who allowed his gardener to sell what he pleased, and often spoiled what he could not otherwise dispose of. Many fine trees, come to great maturity, were cut down to make room for produce for the table.

The abovementioned gardeners Furber and Gray availed themselves of making purchases from this noble collection, and augmented their nurseries with many fine plants not otherwise to be procured.

Brompton Park was another surprising nursery of all the varieties of evergreens, fruits, &c., with a number of others all round the town; for, as the taste increased, nursery-gardens flourished.

Mr. Hunt at Putney, and Mr. Gray, are now living, aged about 70. But more modern cultivators are the celebrated James Gordon at Mile-End, whom for many years, from my extensive correspondence, I have assisted with plants and seeds, and who, with a sagacity peculiar to himself, has raised a vast variety of plants from all parts of the world; and the ingenious Mr. Lee of Hammersmith, who, had he the like assistance, would be little behind him. Mr. Miller of the Physic Garden, Chelsea, has made his great abilities well known by his works, as well as his skill in every part of gardening, and his success in raising seeds procured

cured by a large correspondence. He has raised the reputation of the Chelsea garden so much, that it excels all the gardens in Europe for its amazing variety of plants of all orders and classes, and from all climates, as I beheld with much delight this 19th of July, 1764.

October 3d, 1759, after nine years absence from Goodwood after the death of my intimate friend the late Duke of Richmond, I accompanied the present Duchess there, and to my agreeable surprise found the hardy exotic trees much grown. There were two fine great magnolias about twenty feet high in the American grove that flowered annually. (My tree flowered this year, 1760, that I raised from seed about twenty years before.) Some of the larches measured near the ground seventeen inches round, the rest fourteen inches and a half. I saw a larch of the old Duke's planting cut down, that in twenty-five years was above fifty feet high, and cut into planks above a foot in diameter, and above twenty feet long; but there were some larches of the same date seventy feet high. They grow wonderfully in chalky soil.

October 30th, 1762, the young Lord Petre came of age. The late Lord Petre, his father, died July 2d, 1742: he was my intimate friend, the ornament and delight of the age he lived in. He went from his house at Ingatestone in Essex, to his seat at Thorndon-Hall in the same county, to extend a large row of elms at the end of the park behind the house. He removed, in the spring of the year 1734, being the 22d of his age, twenty-four full-grown elms about sixty feet high and two feet diameter: all grew finely, and now are not known from the old trees they were planted to match. In the year 1738 he planted the great avenue of elms up the park from the house to the esplanade:

nade: the trees were large, perhaps fifteen or twenty years old. On each side the esplanade, at the head or top of the park, he raised two mounts, and planted all with evergreens in April and May 1740. In the centre of each mount was a large cedar of Lebanon of twenty years growth, supported by four larches of eleven years growth. On the same area on the mount were planted four smaller cedars of Lebanon aged twenty years each, supported by four larches aged six years; on the sides Virginian red cedars of three years growth, mixed with other evergreens, which now (anno 1760) make an amazingly fine appearance.

In the years 1741 and 1742, from this very nursery he planted out forty thousand trees of all kinds, to embellish the woods at the head of the park on each side of the avenue to the lodge, and round the esplanade. It would occupy a large work to give a particular account of his building and planting. His stoves exceed in dimensions all others in Europe. He dying, his vast collection of rare exotic plants and his extensive nursery were soon dispersed.

I paid to John Clarke for a thousand cedars of Lebanon, June the 8th, 1761, seventy-nine pounds six shillings, in behalf of the Duke of Richmond. These thousand cedars were planted at five years old, in my sixty-seventh year, in March and April, anno 1761.

In September 1761 I was at Goodwood, and saw these cedars in a thriving state.

This day, October 20th, 1762, I paid Mr. Clarke for another large parcel of cedars for the Duke of Richmond. It is very remarkable that Mr. Clarke, a butcher at Barnes, conceived an opinion that he could raise cedars of Lebanon from cones from the great tree at Hendon-Place. He succeeded perfectly, and

annually

annually raised them in such quantities, that he supplied the nurserymen, as well as abundance of noblemen and gentlemen, with cedars of Lebanon; and he succeeded not only in cedars, but he had a great knack in raising the small magnolia, Warner's Cape jessamine, and all other exotic seeds. He built a large stove for pine-apples, &c.

Any person who has curiosity enough may go to Goodwood in Sussex, and see the date and progress of those cedars, which were at planting five years old. The Duke's father was a great planter; but the young Duke much exceeds him, for he intends to clothe all the lofty naked hills above him with evergreen woods: great portions are already planted, and he annually raises infinite numbers in his nurseries from seeds of pines, firs, cedars, and larches.

In the Duke of Argyle's wood stands the largest New-England or Weymouth pine. This, and his largest cedars of Lebanon now standing, were all raised by him from seed in the year 1725 at his seat at Whitton near Hounslow.

This spring, 1762, all the Duke of Argyle's rare trees and shrubs were removed to the Princess of Wales's garden at Kew, which now excels all others, under the direction of Lord Bute.

Mr. Vernon, Turkey merchant at Aleppo, transplanted the weeping-willow from the river Euphrates, brought it with him to England, and planted it at his seat at Twickenham-Park, where I saw it growing anno 1748: this is the original of all the weeping-willows in our gardens*.

October

* This is the first authentic account we have had of its introduction; the story of its being raised from a live twig of a fruit-basket, received from Spain by Pope, being only

October the 18th, 1765, I went to see Mr. Rogers's vineyard, all of Burgundy grapes, and seemingly all perfectly ripe. I did not see a green half-ripe grape in all this great quantity. He does not expect to make less than fourteen hogsheads of wine. The bunches and fruit are remarkably large, and the vines very strong. He was formerly famous for ranunculuses.

October 18th, 1765, I visited Mrs. Gaskry, at Parson's Green near Fulham. This long, hot, dry summer has had a remarkably good effect on all wall-fruits. Apricots, peaches, and nectarines ripened much earlier than usual, and have been excellent; but the most remarkable was the plenty of pomegranates, near two dozen on each tree, of a remarkable size and fine ruddy complexion, of the size of middling oranges. One that was split showed the redness and ripeness within.

John Buxton, Esq., of Shadwell near Thetford in Norfolk, from the acorns of 1762, sowed or planted on forty-two acres of land 120 bushels, containing as near as can be computed 1,432,320 acorns; which is nearly 34,103 acorns on each acre. For this Mr. Buxton had a present of a gold medal from the Society of Arts, &c. Years or ages hence it may be worth a journey to go and observe the progress of vegetation in the dimensions and heights

only on newspaper authority so late as August 1801.—See Miller's Dictionary by Martyn.——A. B. L.

Sir Thomas Vernon of London, Knight, and some time member for that city, died in 1705, leaving two sons. Henry the eldest died unmarried at Aleppo in Syria, aged 31; his monument is in St. Stephen's church, Coleman-Street. Thomas Vernon, the second son, resided at Twickenham-Park, Middlesex.

The above communicated to me by Sir William A'Court, Bart., nephew to Mr. Vernon.——A. B. L.

heights of this famous plantation, whose beginning is so certainly known.

By a letter (November 28th, 1762,) from Thomas Knowlton, gardener to the Duke of Devonshire at his seat of Londesburgh near York, and director of His Grace's new kitchen-garden, stoves, &c., at Chatsworth, I am informed that the Duke of Devonshire is now sowing seventy quarters of acorns, that is, 560 bushels; an immense quantity: but this year there was the greatest crop of acorns ever remembered. Besides this vast sowing, some hundred thousands of young seedling oaks are planting out this winter: between forty and fifty men are employed about this work. In the year 1761, as many oaks were transplanted from the nursery, of two, three, and four years old.

1761. Our last winter, if it may be called so, exceeded for mildness 1759. The autumnal flowers were not gone before spring began in December with aconites, snowdrops, polyanthuses, &c., and continued without any alloy of intervening sharp frosts, all January, except two or three frosty nights and mornings: a more delightful season could not be enjoyed in southern latitudes. In January and February my garden was covered with flowers.

This summer, 1762, I was visiting Mr. Wood, of Littleton, Middlesex. He showed me a curiosity which surprised me. On a little slender twig of a peach-tree about four inches long, that projected from the wall, grew a peach, and close to it, on the other side of the twig, a nectarine. This Mr. Miller also assured me he had himself known, although not men-

 tioned

tioned here (in his Dictionary); and another friend* assured me that he had a tree which produced the like in his garden at Salisbury: but this I saw myself, and it induces me to think that the peach is the mother of the nectarines; the latter being a modern fruit, as there is no Greek or Latin name for it.

Copied from my nephew Thomas Collinson's Journal of his Travels, 1754.—"In the reign of Queen Elizabeth, anno   the first orange- and lemon-trees were introduced into England by two curious gentlemen, one of them Sir Nicholas Carew, at Bedington, near Croydon, in Surrey." (The title is lately extinct, anno 1763.) These orange-trees were planted in the natural ground; but against every winter an artificial covering was raised for their protection. I have seen them some years ago in great perfection. But this apparatus going to decay, without due consideration a green-house of brick-work was built all round them, and left on the top uncovered in the summer. I visited them a year or two after, in their new habitation, and to my great concern found some dying, and all declining; for, although there were windows on the south side, they did not thrive in their confinement; but being kept damp with the rains, and wanting a free, airy, full sun all the growing months of summer, they languished, and at last all died.

A better fate has hitherto attended the other fine parcel of orange-trees, &c., brought over at the same time by Sir

* I well knew the gentleman here alluded to, Dr. Hancock of Salisbury, who assured me of this fact; and a drawing showing both the fruits on the same branch is now in the possession of H. P. Wyndham, Esq., of Salisbury.

Dr. Hancock told me that he had the tree taken up to send to the Earl of Harburgh, but it was killed by removing.——A. B. L.

Robert

Robert Mansell, at Margam; late Lord Mansell's, now Mr. Talbot's, called Kingsey-castle, in the road from Cowbridge to Swansey, in South Wales. My nephew counted eighty trees of citrons, limes, burgamots, Seville and China orange-trees, planted in great cases all ranged in a row before the green-house. This is the finest sight of its kind in England. He had the curiosity to measure some of them. A China orange measured in the extent of its branches fourteen feet. A Seville orange was fourteen feet high, the case included, and the stem twenty-one inches round. A China orange twenty-two inches and a half in girth.

July 11th, 1777. I visited the orangery at Margam in the year 1766, in company with Mr. Lewis Thomas, of Eglews Nynngt in that neighbourhood, a very sensible and attentive man, who told me that the orange-trees, &c. in that garden were intended as a present from the King of Spain to the King of Denmark; and that the vessel in which they were shipped being taken in the Channel, the trees were made a present of to Sir R. Mansell.

December 10th, 1765. A few days ago died my friend Mr. Bennet, who was very curious and industrious in procuring seeds and plants from abroad. He had a garden behind the Shadwell water-works near the spot where he lived, and built several very handsome stoves at a great expense, filling them with fine exotics of all kinds; but the erecting a fire-engine to raise the water so hurt his plants by the smoke, that he removed to a large garden of two or three acres, in the fields at the back of Whitechapel laystalls. Here he built a large house for pines and other rare exotics, which he left well stocked. In this garden he raised water melons to a great size and perfection; I have told above

 forty

forty lying ripe on the ground. They were raised in frames, and transplanted out under bell-glasses. A basket of these melons was sent to the King. Mr. Bennet had besides a great collection of hardy-ground plants. His garden and all his plants were sold by auction April 14th, 1766.

The seeds of the rhubarb with broad curled leaves were first raised by me. They were sent by Dr. Amman, professor of botany at Petersburg, whose father-in-law was Russian governor of the province near which the rhubarb grows. The seed of that with long narrow curled leaves was sent by the Jesuits in China to my friend Dr. Tanches, at Petersburg, by the Russian caravan, and he sent it to me.

Lord Rochefort, our ambassador in Spain, in a letter dated Madrid, November 1765, says, that in the parts where he had been there are very few forest-trees worth notice; but the ilexes about the Escurial are fine. One sort produces acorns of a monstrous size, which they eat in Spain at their best tables, and they are as sweet as chesnuts.

May 17th, 1761. I was invited by Mr. Sharp, at South Lodge, on Enfield Chace, to dine, and see the Virginia dogwood (*Cornus florida*). The calyx of the flowers is as large as those figured by Catesby, and (what is remarkable) this is the only tree that bears these flowers amongst many hundreds that I have seen: it began to bear them in May 1759.

Anno 1747. Raised a new species of what appears to be a three-thorned Acacia, from seeds from Persia, that came with Azad or Persian hornbeam, given me by Mr. Baker: it thrives well

well in my garden. I gave seed to Mr. Gordon, and he also raised it.

The eastern hornbeam (Miller's Dictionary, edition 8th,) was raised from seed given to me, which came from Persia by the name of *Azad.* I gave it to Mr. Gordon, gardener, at Mile-End, who was so fortunate as to have it come up anno 1747, and from him my garden and other gardens have been supplied. There is a large tree in my field at Hendon, Middlesex.

Mr. Miller is greatly mistaken in saying the Arundo No. 2, or *Donax,* dies down every year. In my garden the stalks have continued for some years making annually young green shoots from every joint, and bear a handsome tassel of flowers. The first time I ever saw it in flower was September 15th, 1762. This very long hot dry season has made many exotics flower.

Donax seu Arundo flowered this year also (1762) at Mr. Gordon's at Mile-End.

October the 22d, 1746, I received the first double Spanish broom that was in England, sent me by my friend Mr. Brewer at Nuremberg: it cost there a golden ducat; and, being planted in a pot nicely wickered all over, came from thence down the river Elbe to Hamburgh, from whence it was brought by the first ship to London. I inarched it on the single-flowered broom, and gave it to Gray and Gordon, gardeners, and from them all have been supplied.

Anno 1756. Some roots of Siberian martagon, sent me by Mr. Demidoff, proprietor of the Siberian iron mines, flowered for the first time, May 24th, 1756. The flower is but little reflexed, and is, I think, the nearest to black of any flower that I know.

In

In the year 1727, my intimate friend Sir Charles Wager, first lord of the admiralty, brought plants from Gibraltar-Hill, of the *Linaria procumbens Hispanica flore flavescente pulchrè striato, labiis nigro-purpureis,* which I have yet in my garden, anno 1761; and at the same time he brought the broad-leaved *Teucrium*, and a species of periwinkle, neither of which were in our gardens before; and some roots of what is called *Hyacinths of Peru.*

In the year 1756, the famous tulip-tree in Lord Peterborough's garden at Parson's Green, near Fulham, died. It was about seventy feet high, the tallest tree in the ground, and perhaps a hundred years old, being the first tree of the kind that was raised in England. It had for many years the visitation of the curious to see its flowers, and admire its beauty, for it was as straight as an arrow, and died of age by a gentle decay. But it was remarkable, that the same year that this died, a tulip-tree which I had given to Sir Charles Wager flowered for the first time in his garden, which was opposite Lord Peterborough's. This tulip-tree I raised from seed, and it was thirty years old when it flowered.

April 8th, 1749. I removed from my house at Peckham, Surry, and was for two years in transplanting my garden to my house at Mill-Hill, called Ridgeway-House, in the parish of Hendon, Middlesex.

Anno 1751. I raised the China or paper mulberry from seed given me by Dr. Mortimer.

X. *A De-*

Fig. 1.

Centrolepis cuspidigera.

Fig. 2.

Centrolepis Aemula.

Anne Rudge del.

X. *A Description of several Species of Plants from New Holland.* *By Edward Rudge, Esq. F.R.S. and L.S.*

Read April 18, 1809, *and January* 16, 1810.

Centrolepis cuspidigera.

Monandria Monogynia.

Tab. XII. *Fig.* 1.

Centrolepis foliis parum pubescentibus: spathis longissime cuspidatis, valde hispidis: paleis emarginatis.

Devauxia Billardieri. *Brown Prod. v.* 1. 252.

Planta tres ad quatuor pollices longa.

Radix fibrosa.

Scapi plures, erecti, teretes, basi foliis vaginati.

Spathæ bivalves, ovatæ, longissime cuspidatæ, basi concavæ, pilis albidis rigidis hispidæ, decem- ad duodecim-floræ.

Calyx nullus.

Corolla nulla; *Paleæ* unilaterales, tot quot flores, ovato-oblongæ, emarginatæ.

Stamen. Filamentum filiforme, paleâ longius, basi pistilli insertum. *Anthera* cordata, versatilis.

Pistillum. Germen superum, ovatum; *Stylus* tripartitus; *Stigma* acuta, glandulosa.

Capsula trilocularis; loculis a basi inæqualiter distantibus, monospermis.

Semina

Semina ovata.

Habitat prope Port Jackson in Novâ Hollandiâ.

Tab. XII. *Fig.* 1. Planta magnitudine naturali.

a. Spathæ cum floribus magnitudine auctæ.

b. Eædem sejunctæ floribus orbatæ.

c. Folium.

d. Flos integer eadem proportione ampliatus.

e. Capsula.

f. Anthera dorso et fronte visa.

g. Semen.

Centrolepis æmula.

Tab. XII. *Fig.* 2.

C. foliis usque ad apicem villosis, peracutis: spathis acuminatis: paleis obtusis.

Devauxia Patersonii. *Brown Prod. v.* 1. 252.

Planta biuncialis.

Radix fibrosa.

Scapi plures, teretes, purpurei.

Folia scapo breviora, villis albidis usque ad apicem tecta.

Spathæ bivalves, ovatæ, apice obtusæ, concavæ, villosæ, multifloræ.

Calyx nullus.

Corolla nulla. *Paleæ* unilaterales, ovatæ, concavæ, integræ.

Stamen. Filamentum basi pistilli insertum, paleæ longitudine. *Anthera* oblonga.

Germen oblongo-ovatum.

Semina ovata, circiter novem in singulis spiculis.

Habitat prope Port Jackson in Novâ Hollandiâ.

Tab.

Fig. 1.

Pimelea curviflora?

Fig. 2.

Pimelea glauca?

TAB. XII. *Fig.* 2. Planta magnitudine naturali.
a. Spathæ cum floribus magnitudine auctæ.
b. Flos integer eadem proportione ampliatus.
c. Capsula.
d. Anthera.
e. Semen.
f. Folium.

The name of this genus would be much more appropriate by deriving it from its prickly spathes, the Greek word κεντρον meaning a prickle as well as a centre: for the glumes are unilateral in several species, and probably not truly central (as Monsieur Billardiere describes them) in any: I use the term spathes in conformity to his description of *Centrolepis fascicularis.*

PIMELEA CURVIFLORA.

TAB. XIII. *Fig.* 1.

P. foliis ovalibus, capitulo in omnibus fere axillis brevissime pedunculato: corollâ extus valde barbatâ tubo curvato: antheris cordatis.

Pimelea curviflora. *Brown Prod. v.* 1. 362.

Fruticulus gracilis, ramosissimus, diffusus.

Rami teretes, divaricati, villis densissime imbricatis.

Folia ovalia, subsessilia, integerrima, supra glabra, subtus pilosa, tres vel quatuor lineas longa.

Flores capitulo in omnibus fere axillis brevissime pedunculato terminales.

Capitulum sex- ad octo-florum.

Calyx nullus.

Corolla. Tubus inferne curvatus, extus villosus, albidus, intus glaber: *Limbus* quadripartitus: *Laciniæ* oblongo-ovatæ, obtusæ.

Stamina. Filamenta duo filiformia, fauce corollæ inserta, laciniis corollæ multo breviora; *Antheræ* cordatæ.

Pistillum. Germen oblongum, glabrum; *Stylus* filiformis, curvatus, tubo corollæ brevior; *Stigma* capitatum.

Habitat in Novâ Cambriâ.

TAB. XIII. *Fig.* 1. Planta magnitudine naturali.
a. Corolla magnitudine multum aucta.
b. Corolla aperta.
c. Antheræ dorso et fronte visæ.
d. Pistillum.

PIMELEA GLAUCA.

TAB. XIII. *Fig.* 2.

P. foliis ovali-lanceolatis, lævibus: corollâ extus villosâ tubo cylindraceo; filamentis brevissimis, stylo longissimo: stigmate minutissime barbato.

Pimelea glauca. *Brown Prod.* 360.

Frutex ramosus.

Rami teretes, glabri.

Folia decussata, subsessilia, patentissima, ovali-lanceolata, integerrima, lævia, glauca, semiunguicularia.

Flores in capitulis involucratis bracteis quatuor ovatis.

Capitulum terminale, multiflorum.

Calyx nullus.

Corolla monopetala, tubulosa; *Tubus* extus villosus, albus, intus glaber; *Limbus* profunde quadripartitus; *Laciniæ* ovato-lanceolatæ.

Stamina. Filamenta duo, brevia, fauce tubi inserta. *Antheræ* oblongæ.

Pistillum.

Fig. 1.

Fig. 2.

Pimelea filamentosa.

Pimelea spicata.

R. del!

Pistillum. Germen clavatum, glabrum; *Stylus* filiformis, apice inflexus, tubo corollæ multo longior; *Stigma* parvum, obtusum, minutissime barbatum.

Habitat in Novâ Hollandiâ.

Tab. XIII. *Fig.* 2. Ramus magnitudine naturali.
a. Corolla magnitudine multum aucta.
b. Corolla aperta.
c. Pistillum.
d. Anthera.

Pimelea filamentosa.

Tab. XIV. *Fig.* 1.

P. foliis lanceolatis mucronatis, capitulis grandibus, bracteis ovato-cuneatis; corollâ extus villosâ; filamentis longissimis; antheris sublineαribus.

Folia opposita, sessilia, glabra, mucronata.

Flores in capitulis grandibus involucratis foliolis quatuor ovatis, utrinque glabris; receptaculo longo piloso.

Calyx nullus.

Corolla monopetala, tubulosa, extus pilosa, pilis infra longioribus et rigidioribus; *Laciniæ* æquales, ovato-oblongæ, obtusæ.

Stamina. Filamenta longissima, fauce tubi inserta. *Antheræ* sublineares.

Pistillum. Germen ovatum, glabrum; *Stylus* filiformis, exsertus; *Stigma* hemisphœricum, pilosum.

Habitat in Novâ Hollandiâ.

Tab. XIV. *Fig.* 1. Ramus magnitudime naturali.
a. Corolla magnitudine aucta.
b. Corolla aperta.
c. Pistillum.
d. Stamen.

Pimelea spicata.

** Flores spicati.*

Tab. XIV. *Fig.* 2.

P. foliis ovalibus, lævibus, longe nunc per paria distantibus: corollâ apice extus tantum pubescentulâ, laciniis obovatis: antheris minutis subsessilibus.

Pimelea spicata. *Brown Prod. v.* 1. 362.

Folia opposita, longo intervallo nunc per paria distantia, lævia, brevissime petiolata: nervis paucis.

Flores in spicâ pergente florescentiâ elongatâ, terminali, foliis duobus involucratâ.

Calyx nullus.

Corolla monopetala, tubulosa, utrinque glabra. *Limbus* quadrifidus; *Laciniæ* obovatæ, apice extus tantum pubescentulæ.

Stamina. Filamenta duo brevissima, fauce tubi inserta. *Antheræ* subovatæ.

Pistillum. Germen ovatum; *Stylus* filiformis fere altitudine limbi; *Stigma* capitatum, barbatum.

Habitat prope Port Jackson in Novâ Hollandiâ.

Tab. XIV. *Fig.* 2. Planta magnitudine naturali.
a. Corolla magnitudine aucta.
b. Corolla.

Scirpus gracilis. Xyris elongata.

R. del.

b. Corolla aperta.
c. Pistillum.
d. Anthera.

XYRIS ELONGATA.

TAB. XV. *Fig.* 1.

X. scapo ancipiti longissimo, capitulo oblongo, bracteis inferioribus acute carinatis.

Radix fibrosa.

Folia inferne equitantia, scapo duplo breviora, angusta, subulata, præter stipulas reliquas gemmaceas vaginæformes.

Scapi plures, bipedales ancipites margine crassiusculo flavo, tenuissime striati, torti, foliis duobus vaginati.

Spica oblonga, imbricata, uncialis, bracteis ovatis, concavis, margine membranaceis, flores plures claudentibus: ad singulos bracteæ duæ acute carinatæ.

Corolla tripetala, lutea, petalorum laminæ late obcuneatæ.

Stamina. Filamenta tria, brevissima, basi corollæ inserta. *Antheræ* sulcatæ, basi apiceque profunde emarginatæ.

Stylum non vidi.

Habitat prope Port Jackson in Novâ Hollandiâ.

TAB. XV. *Fig.* 1. Planta magnitudine naturali.
a. Corolla magnitudine aucta.
b. Anthera.

SCIRPUS GRACILIS.

TAB. XV. *Fig.* 2.

S. culmo nudo, tereti, capitulo glomerato mucronato.

Isolepis nodosa. *Brown Prod. v.* 1. 221.

Culmus

Culmus nudus, lævis, teres, subtilissime striatus, apice in acutum mucronem terminans.

Capitulum parvum, juxta apicem culmum unilaterale glomeratum, spicis paucis ovatis, acutis, fuscis, sessilibus.

Spicæ late ovatæ, imbricatæ, dense conglomeratæ; *Squamis* ovato-lanceolatis, acutis, concavis, carinatis, fere omnibus fertilibus.

Stamina. Filamenta tria, membranacea. *Antheræ* oblongæ, albæ.

Pistillum. Germen obovatum, glabrum. *Stylus* unicus. *Stigmata* tria minutissime barbata.

Semina non vidi.

Scirpo nodoso affinis.

Habitat in Novâ Hollandiâ.

TAB. XV. *Fig.* 2. Planta magnitudine naturali.
a. Spica magnitudine aucta.
b. Flosculus.

PERSOONIA PINIFOLIA.

Tetrandria Monogynia.

TAB. XVI. *Fig.* 1.

P. foliis perangustis linearibus, ad flores repente abbreviatis: spicâ longâ terminali.

P. pinifolia. *Brown* in *Trans. Linn. Soc. v.* 10. *p.* 160. et *Prod. v.* 1. 372.

Caulis teres, pilosus.

Folia densa, perangusta, recurva, linearia, acuta, canaliculata, tenella pubescentia, adulta sæpe omnia glabra: ad flores in bracteas repente abbreviata.

Flores in spicis dense imbricatis, pedunculis brevibus.

Calyx

Persoonia pinifolia.

Persoonia hirsuta.

Æ. del.

Calyx nullus.

Corolla. *Petala* quatuor paulo infra medium staminifera, superne recurva, extus pubescentia.

Stamina. *Filamenta* omnium brevissima. *Antheræ* longissimæ, lineares, demum recurvæ, biloculares, quadrivalves, facie dehiscentes.

Pistillum. *Germen* oblongum: *Stylus* glaber, persistens: *Stigma* obtusum.

Habitat prope Port Jackson in Novâ Hollandiâ.

Tab. XVI. *Fig.* 1. Planta magnitudine naturali.
a. Flos integer cum bractea magnitudine auctus.
b. Petalum.
c. Anthera dorso et fronte visa.
d. Pistillum.

Persoonia hirsuta.

Tab. XVI. *Fig.* 2.

P. foliis recurvulis, linearibus, convexis, sulco subtus, hirsutis; floribus axillaribus, dense hirsutis.

P. hirsuta. *Pers. Syn.* 1. *p.* 118. et *Brown* in *Linn. Trans. v.* 10. *p.* 161. et *Prod. v.* 1. 372.

Caulis teres, densissime hirsutus.

Folia linearia, sessilia, subtus sulcata, undique pilosa.

Flores solitarii, axillares; pedunculis brevibus, densissime hirsutis.

Calyx nullus.

Corolla. *Petala* quatuor, paulo infra medium staminifera, spatulato-lanceolata, extus pilis densissimis obducta, intus glabra, superne recurva.

Staminum

Staminum Filamenta brevissima. *Antheræ* longissimæ, lineares, post anthesin mox recurvæ.

Pistillum. Germen ovatum, densissime hirsutum. *Stylus* glaber, sulcatus, persistens. *Stigma* hemisphæricum.

Habitat prope Port Jackson in Novâ Hollandiâ.

TAB. XVI. *Fig.* 2. Planta magnitudine naturali.
a. Flos integer magnitudine auctus.
b. Petalum.
c. Antheræ dorso et fronte visæ.
d. Pistillum.

CONOSPERMUM ERICIFOLIUM.

Tetrandria Monogynia.

TAB. XVII. *Fig.* 1.

C. foliis tres ad quatuor lineas longis, linearibus, dense imbricatis: pedunculis multibracteatis: antheris suborbicularibus.

C. ericifolium. *Smith* in *Rees. Cyclop. Brown* in *Trans. Linn. Soc. v.* 10. *p.* 154. et *Prod. v.* 1. 368.

Frutex rigidus.

Caulis erectus, gracilis, parum ramosus, sericeo-pubescens.

Folia linearia, dense imbricata, apice acuta.

Bracteæ ovatæ, acutæ.

Flores paniculis florescentiâ pergente spicatim elongatis.

Corolla monopetala, irregularis, quadrifida, laciniâ unâ cucullatâ.

Stamina. Filamenta tria, fauce tubi inserta. *Anthera* unica sub laciniâ cucullatâ bilocularis: duæ sub laciniis lateralibus incompletæ uno loculo deficiente.

Pistillum.

Conospermum ericifolium.

Zieria pilosa.

M. del.

Pistillum. Germen subglobosum, pappo pilo denso coronatum. *Stylus* filiformis, contortus? versus laciniam corollæ sterilem. *Stigma* clavatum.

Habitat prope Port Jackson in Novâ Hollandiâ.

Tab. XVII. *Fig.* 1. Planta magnitudine naturali.
a. Flos integer cum Bracteâ magnitudine auctus.
b. Corolla aperta.
c. Antheræ.
d. Pistillum.

Zieria pilosa.

Tab. XVII. *Fig.* 2.

Z. foliorum laminis tres ad quatuor lineas longis, lanceolatis, subtus pilosis; floribus solitariis, axillaribus.

Frutex ramosus, ramis oppositis densissime hirsutis.

Folia opposita, ternata: *Petioli* pilosi: *Laminæ* uninerviæ, supra glabræ, punctatæ, subtus pilosæ.

Flores solitarii, axillares, pedunculati.

Pedunculi breves, teretes, pilosi.

Calyx profunde quadrifidus, laciniis acutiusculis.

Corolla. Petala quatuor, ovata, obtusa, utrinque glabra.

Stamina. Filamenta quatuor, lata, singula glandulâ insidentia, glabra. *Antheræ* cordatæ, biloculares.

Pistillum. Germen quadrilobum. *Stylus* brevis. *Stigma* quadrilobum.

Cocci quatuor, ovati, hirsuti, monospermi.

Habitat in Novâ Cambriâ. Legit J. White.

TAB. XVII. *Fig.* 2. Planta magnitudine naturali.
a. Flos integer magnitudine auctus.
b. Idem petalis abruptis.
c. Anthera dorso et fronte visa.
d. Pistillum cum calyce.
e. Cocci tunica interior pergaminea.
f. Semen.

CRYPTANDRA ERICIFOLIA.

Pentandria Monogynia.

TAB. XVIII. *Fig.* 1.

C. caule sericeo: foliis duas ad tres lineas longis, linearibus acutis: corollis extus sericeis.

C. ericifolia. *Smith in Rees Cyclop.*

Frutex pergracilis: ramis paucis longis, superne sericeis.

Folia alterna, inter se remotiuscula, duas ad tres lineas longa, linearia, lateribus usque ad medium arcte reduplicatis, acuta, glabra.

Flores in capitulis terminalibus.

Bractea ad basin singulorum florum, cuneata, extus sericea.

Calyx quinquefidus: laciniis structura bractearum.

Corolla tubulosa, limbo quinquefido, densissime sericea, intus glabra.

Stamina. Filamenta quinque, inter segmenta tubi squamis cucullatis inserta. *Antheræ* bilobæ.

Pistillum. Germen oblongum, pilosum. *Stylus* simplex. *Stigma* obtusum.

Habitat prope Port Jackson in Novâ Hollandiâ.

TAB.

Fig. 1.

Cryptandra ericifolia.

Fig. 2.

Cryptandra amara.

M. del.

TAB. XVIII. *Fig.* 1. Planta magnitudine naturali.

a. Flos integer magnitudine ampliatus.

b. Idem apertus.

c. Anthera dorso et fronte visa cum cucullo.

d. Pistillum.

e. Calyx cum Bracteâ.

CRYPTANDRA AMARA.

TAB. XVIII. *Fig.* 2.

C. caule incano: foliis unas ad duas lineas longis, spatulatis, obtusis: corolla extus incana.

C. amara. *Smith in Rees Cyclop.*

Frutex humilis: ramis numerosis, densis dum teneris incanis.

Folia alterna, densa, unas ad duas lineas longa, spatulata, lateribus etiam magis quam in præcedente reduplicatis, et supra medium plane confluentibus, margine scabriuscula.

Flores in capitulis terminalibus.

Bracteæ inferiores structurâ fere foliorum sensim magis calycinæ.

Calyx quinquefidus: laciniis late ovatis.

Corolla late infundibuliformis; laciniis cuneatis, obtusissimis; extus incana.

Stamina. Filamenta quinque, ut in præcedente inserta, squamis parum cucullatis. *Antheræ* profunde bilobæ.

Pistillum. Germen late obconicum. *Stylus* simplex. *Stigma* apice styli vix latius.

Habitat prope Port Jackson in Novâ Hollandiâ.

TAB. XVIII. *Fig.* 2. Planta magnitudine naturali.

a. Flos integer magnitudine auctus.

 b. Corolla

b. Corolla aperta.
c. Anthera dorso et fronte visa cum cucullo.
d. Pistillum.

Styphelia reflexa.

Pentandria Monogynia.

Tab. XIX. *Fig.* 1.

S. corollæ limbo reflexo, hirsutissimo, racemis terminalibus; foliis oblongis lateribus revolutis.

Frutex erectus, ramosus.

Folia oblonga, lateribus revolutis, obtuse acuminata subsessilia.

Flores terminales in capitulum congesti, breviter pedicellati.

Bracteæ duæ, calyce breviores, ovatæ.

Calyx squamulis imbricatis, pubescentibus inferioribus parum carinatis.

Corolla breviter tubulosa, calyce longior, extus lævis, laciniis quinque longissimis recurvis, pilis longis niveis intus densissime hirsutis.

Stamina. Filamenta quinque fauce tubi inserta. *Antheræ* longæ recurvæ, superne acutæ, inferne latiores, sulcatæ.

Pistillum. Germen turbinatum. *Stylus* brevis. *Stigma* capitatum.

Habitat in Novâ Hollandiâ.

Tab. XIX. *Fig.* 1. Planta magnitudine naturali.
a. Flos integer magnitudine auctus.
b. Corolla aperta.
c. Antheræ dorso et fronte visæ.
d. Pistillum.

Lasi-

Lasiopetalum parviflorum.

Styphelia reflexa?

R del.^t

Lasiopetalum parviflorum.

Pentandria Monogynia.

Tab. XIX. *Fig.* 2.

L. foliis lineari-lanceolatis, vix acuminulatis: floribus parvis: antherarum rachi latâ.

Frutex gracilis, more affinium totus tomento ferrugineo stellato vestitus.

Bracteæ valde tomentosæ.

Folia alterna tres ad quatuor pollices longa, duas ad quatuor lineas lata, supra etiam dum tenera tomentosa, lineari-lanceolata basi imâ nunquam retusâ.

Flores in cymis brevibus nutantibus.

Corolla longe minor quam in congeneribus, cæterum parum discæ pars; laciniis ovato-acuminatis, incurvis.

Stamina. Filamenta brevissima, receptaculo inserta, adpressa germini. *Antheræ* apice truncatulæ, rachi latiore quam in cæteris.

Pistillum. Germen subglobosum, trilobum, superum. *Stylus* brevissimus. *Stigma* simplex.

Habitat in Novâ Hollandiâ.

Tab. XIX. *Fig.* 2. Planta magnitudine naturali.
- *a.* Pars racemi magnitudine aucta.
- *b.* Bractea.
- *c.* Calyx.
- *d.* Flos integer fronte visus.
- *e.* Idem dorso visus.
- *f.* Flos apertus.
- *g.* Stamina petalis abruptis.
- *h.* Anthera dorso et fronte visa.
- *i.* Pistillum.

Pitto-

Pittosporum fulvum.

Pentandria Monogynia.

Tab. XX.

P. caule tenero valde tomentoso: foliorum laminis late lanceolatis: calycis foliolis patentibus: petalis flavis: stigmate vix bilobo.

Folia tres ad quatuor pollices longa, $1\frac{1}{2}$ lata: *Petioli* brevissimi, rare tomentosi: laminæ late lanceolatæ, integerrimæ, obtusæ, per nervos tomentosæ, cæterum fere læves.

Flores in paniculis densissimis fasciculati, fragrantes.

Pedunculus terminalis, gracilis, viscidulo-pubescens.

Bracteæ structurâ calycis, sed angustiores.

Calyx patens: foliolis lanceolato-cuneatis, ante petala cadentibus.

Corolla. Petala septem ad octo lineas longa, flava, apice revoluta, arcte cohærentia præcipue versus apicem postquam ceciderunt.

Stamina. Filamenta flava, compressiuscula.

Germen pallide viride, pube mox fuscescente.

Pericarpium basi tantum biloculare, dein uniloculare.

Genus *Bursariæ* et *Billardieræ* in serie naturali propinquum.

Habitat prope Port Jackson in Novâ Hollandiâ.

Tab. XX. Planta magnitudine naturali.
a. Flos integer magnitudine parum auctus.
b. Calyx.
c. Corolla aperta.
d. Antheræ dorso et fronte visæ.
e. Pistillum.

Mars-

Pittosporum fulvum.

M. del.

Trachymene incisa?

Marsdenia? suaveolens

Marsdenia suaveolens.

Pentandria Digynia.

Tab. XXI. *Fig.* 1.

M. foliis ovalibus glabris; floribus axillaribus; corollæ laciniis basi intus minute barbatis.

Marsdenia suaveolens. *R. Brown in Trans. Soc. Wern. Edinb.*

Folia opposita, petiolata, utrinque glabra, avenia.

Flores in paniculis axillaribus, sex- ad octo-floris.

Calyx monophyllus, persistens, quinquepartitus, laciniis ovatis margine ciliatis.

Corolla monopetala, tubo brevi; laciniæ quinque longæ, obtusæ, basi intus minute barbatæ.

Stamina. Filamenta quinque lata, infra Nectarium conicum quinquedentatum inserta. *Antheræ* bilobæ minutissimæ, membranâ terminatæ.

Pistillum. Germen obconicum, bilobum. *Styli* duo, breves. *Stigmata* duo, obtusa.

Habitat prope Port Jackson in Novâ Hollandiâ.

Obs. I had figured and described this plant some time since, but delayed presenting it to the Society, in order not to interfere with the arrangement of the whole Genus, as described by Mr. Brown, and just published in the Transactions of the Wernerian Society at Edinburgh; and I have therefore preserved the specific name by which it is laid down in the Banksian Herbarium.

Tab. XXI. *Fig.* 1. Ramus magnitudine naturali.
a. Flos integer magnitudine auctus.
b. Corolla.
c. Eadem aperta.
d. Stamina corollâ abruptâ.
e. Stamen unicum fronte, latere et dorso visum.

f. Nec-

f. Nectarium cum granis pollinis adhærentibus.
g. Calyx et Germen.
h. Pistillum cum stylis duobus.

TRACHYMENE.

Pentandria Digynia.

Char. Essen. Petala quinque ovato-lanceolata, integra. *Fructus* subglobosus tuberculis scaber, bipartibilis. *Involucrum* polyphyllum. *Umbella* simplex.

Trachymene incisa.

Tab. XXI. *Fig.* 2.

T. foliis radicalibus incisis, umbellis paucis.
Caulis erectus, teres, gracilis.
Folia radicalia, ternata, multipartita, incisa, longe petiolata.
Umbella simplex, terminalis, radiis pluribus, brevibus.
Calyx nullus.
Corolla. Petala quinque ovata cum acumine inflexo.
Stamina. Filamenta quinque petalis longiora; Antheris bilocularibus, reniformibus.
Pistillum. Germen inferum, cyathiforme. *Styli* divaricati. *Stigmata* simplicia.
Fructus rugosus bipartibilis in semina duo semiovata, gibba.
Habitat prope Port Jackson in Novâ Hollandiâ.
Nomen a τραχυς asper, et μηνη membrana.

Obs. This Genus appears to be the same as *Azorella* of La Billardiere; but that name having been previously given to another by Cavanilles, and which is taken up in Lamarck's *Encyclop. Bot.*, I am under the necessity of giving this another name.

Tab.

Linn. Trans. Vol. X. Tab. 22. p. 301.

Fig. 1.

Fig. 2.

Xanthosia pilosa.

Poranthera ericifolia?

F.B. del^t

TAB. XXI. *Fig.* 2. Planta magnitudine naturali.
a. Flos integer magnitudine auctus.
b. Idem petalis diruptis.
c. Anthera fronte et dorso visa.
d. Pistillum.
e. Fructus.

XANTHOSIA.

Pentandria Digynia.

CHAR. ESSEN. Calyx diphyllus. Petala quinque, ovata, staminibus opposita. Fructus ovatus, bipartibilis, glandulis duabus coronatus, striatus.

XANTHOSIA PILOSA.

TAB. XXII. *Fig.* 1.

X. foliis lanceolatis, sinuatis, floribus axillaribus.
Frutex ramosus.
Caulis erectus, gracilis, pilosus.
Folia alterna, petiolata, sublanceolata, sinuata, subtus pilosa.
Flores plures axillares.
Bracteæ duæ, subulatæ, pilis longis densissime vestitæ.
Calyx diphyllus corollâ longior.
Corolla. Petala quinque ovata, acuta.
Stamina. Filamenta petalorum longitudine. *Antheræ* reniformes, biloculares.
Nectaria duo.
Pistillum. Germen ovatum, striatum, bipartibile, glandulis duabus coronatum. *Styli* duo pilosi. *Stigma* simplex.
Habitat prope Port Jackson in Novâ Hollandiâ.

Nomen a ξανθος flavus. This plant when immersed in warm water communicates to it a deep yellow colour.

TAB. XXII. *Fig.* 1. Ramulus magnitudine naturali.
a. Flos integer magnitudine auctus.
b. Calyx.
c. Bractea.
d. Corolla latere et fronte visa.
e. Eadem petalis diruptis.
f. Anthera latere, dorso et fronte visa.
g. Nectaria.
h. Pistillum.

PORANTHERA.

Pentandria Trigynia.

CHAR. ESSEN. Flores corymbosi. Petala quinque, ovata, integra. Involucrum octophyllum. Calyx nullus. Pericarpia tria polysperma.

PORANTHERA ERICIFOLIA.

TAB. XXII. *Fig.* 2.

P. foliis subulatis, multifariam imbricatis; corymbis terminalibus.

Frutex ramosus, ramis teretibus, patentibus.

Radix fibrosa.

Folia numerosa, lineari-subulata, dense imbricata, tres ad quatuor lineas longa, vix quintam lineæ partem lata.

Corymbus compositus, terminalis.

Calyx nullus.

Corolla.

Corolla. Petala quinque ovato-oblonga, integerrima.

Stamina. Filamenta quinque, petalis duplo longiora. *Antheræ* quadriloculares.

Pericarpia tria polysperma.

Habitat prope Port Jackson in Novâ Hollandiâ.

Nomen a πορος porus et ανθηρη anthera.

Tab. XXII. *Fig.* 2. Planta magnitudine naturali.
a. Flos integer magnitudine auctus.
b. Idem petalis abruptis.
c. Antheræ latere, fronte et dorso visæ.
d. Pericarpia.

The Synonyms to several of the species above described have been added from Mr. Brown's *Prodromus,* which has been published some time since this paper was read to the Linnean Society.

XI. *Some Remarks on the Physiology of the Egg, communicated in a Letter from John Ayrton Paris, M.B. to William George Maton, M.D. V.P.L.S. &c. &c.*

Read April 4th, 1809.

Dear Sir,

The extensive range which the *Ovipari* form in the scale of animated existence renders the physiology of the egg a subject of extraordinary interest and importance to the disciple of Linnæus: I am therefore induced to hope that the communication of any new facts relative to its organization and development will be received by you as an acceptable tribute to the cause of natural history.

The *ova*, or germs of oviparous animals admit of an evident division into two orders. I. The Perfect, and II. the Imperfect. The former are deposited by the *Aves*, *Serpentes*, and by most *Oviparous Quadrupeds*, and are completely formed *in utero*; whilst the latter, produced by some of the *Testacea*, *Amphibia*, and by most *Pisces*, acquire additions after their exclusion. The observations contained in this memoir relate more particularly to the class *Aves*, the history of whose *ova* comprehends whatever is interesting or important in the germs of inferior animals. The egg, when completed and deposited, consists of the following parts:—

1. *Vitellus* or *yolk*, with its *capsule* and *cicatricula*; 2. The two *Albumina*

Albumina, with their proper membranes; 3. The *Chalazæ*; 4. The *Folliculus aëris*; 5. The *Common Membranes*; 6. The *Exterior Involucrum*, or *Shell*.

The necessity of any description of these parts is superseded by the minute and valuable details which are to be found in the works of FABRICIUS AB AQUAPENDENTE, HARVEY, MALPIGHI, and of many modern and enlightened physiologists; I shall confine myself, therefore, to what I consider exclusively original.

The principal use of the albuminous portion of the egg is doubtless to afford materials for the growth, and nourishment for the support, of the ovular embryon: such however does not appear to be the *only* purpose for which it is designed. No where does Nature display more anxiety for the preservation of her offspring, or more wisdom to obtain her objects, than in her provisions to ensure an equable temperature to the *fœtus in ovo*; a condition which is so essential to the evolution of the animal, that the smallest deviation overthrows the nice balance between the different actions that are to mature it, and produces fatal effects. The *albumen* then I consider as a great defence against such an evil. The *chalaza*, by retaining the *cicatricula* at the source of heat, obviates the mischief that would accrue from constant change of position; but the *albumen*, being a most feeble conductor of caloric, retards the escape of heat, prevents any sudden transition of temperature, and thus averts the fatal chills which the occasional migrations of the parent might induce. As an illustration of the use and importance of such a structure, I may observe, that those fish which retain their vitality a considerable time after their removal from the water, as eels and tench, have the power of secreting a slimy and viscid fluid, with which they envelop their bodies. Is it not extremely probable that this matter, by acting like the albumen of the egg, and

and preventing evaporation from the surface of the animal, and the consequent change of temperature, may be the principal cause of this tenacity of life?

It must however be remarked, that deviations of temperature are injurious and fatal in proportion only to the degree of vital energy which the ovular embryon possesses: hence germs of inferior vitality not only suffer the vicissitudes of heat and cold with impunity, but are developed by a less defined temperature. We therefore perceive, as we descend the scale of oviparous beings, that those peculiar provisions which the eggs of perfect animals possess, for the regulation of their temperature, cease to be essential, and therefore disappear.

The part of the egg to which I next beg to direct your attention is the *folliculus aëris*, or air-bag, placed at its obtuse extremity; the nature of this follicle excited in me considerable interest, as I found that it had not been so fully investigated as its importance seemed to demand.

The external shell, and the internal membrane by which it is lined, constitute the *parietes* of the cavity, whose extent in the recent egg scarcely exceeds in size the eye of a small bird: by incubation, however, it is extended to a considerable magnitude. That its most essential use is to oxygenate the blood of the chick, in my opinion there can be no doubt: but to establish completely the truth of such a theory, it is necessary to discover the nature of the air by which it is inflated, and which has hitherto remained unexamined. We are informed by Buffon, that it is a product of the fermentation which the different parts of the egg undergo. If the Count's conjecture be established, it must be non-respirable, and therefore cannot discharge the office which such a theory would assign to it. To determine this matter, and to discover also whether the process of incubation produces any change

change in its chemical constitution, I instituted the following experiments; viz.

EXPERIMENT 1.

Twenty-one hen's eggs newly laid, when punctured at their obtuse extremity, yielded only 1 cubical inch of gas, which, when received in a jar, and subjected to the eudiometric test of Dr. Priestley, I found to be pure atmospherical air.

EXPERIMENT 2.

Two eggs, after 20 days' incubation, were opened under the surface of water, from which 1 cubical inch of gas was collected: this I also discovered to be atmospherical air, contaminated however with a small portion of carbonic acid, which I suspect to be derived from the venous blood of the chick, and which seems to establish another most beautiful analogy between this mode of oxygenation, and respiration after birth.

From these results the following corollaries may be drawn: *viz.*

1. The *folliculus aëris* before incubation contains atmospherical air.
2. No other chemical change takes place in the constitution of the air, than a small inquination with carbonic acid.
3. It gains by incubation an increase of volume, which takes place nearly in the ratio of 10 to 1.

I must here remark, that its extent does not increase equally in equal successive portions of time, but observes a rate of progression, which is accelerated as the latter stages of incubation advance: it seems, however, to arrive at its *maximum* of dilatation a few days previous to the exclusion of the animal.

In the eggs of inferior animals, the embryon does not appear to be oxygenated by any distinct apparatus, but, like the animal which

which it is hereafter to become, receives air through the medium of *spiracula*, dispersed over the exterior *involucrum*. The description of the *folliculus aëris* just delivered is taken from that in the egg of our common hen. The same apparatus exists in the eggs of all birds, and contains a similar air: its capacity, however, does not seem to vary either with the size of the egg, or of the bird to which it belongs; but I think I have discovered a beautiful law by which its extent is modified.

I have uniformly found, as far as my contracted inquiries have led me, that the *folliculus aëris* is of greater magnitude in the eggs of those birds which place their nests on the ground, and whose young are hatched fledged, and capable of exerting their muscles as soon as they burst from their shell, than in the eggs of those whose nests are generally built on trees, and whose progeny are born blind and forlorn. Thus the *folliculi* in the eggs of fowls, partridges, and moor-hens are of considerable extent, whilst those in the eggs of crows, sparrows, and doves are extremely contracted. The chick, therefore, of fowls and partridges has a more perfect plumage, and a greater aptitude to locomotion, than the callow nestlings of doves and sparrows. Such an instance of the agency of oxygenation in the promotion and increase of muscular power is not solitary in physiology; for the history of ruminating animals will furnish us with a parallel example. "Their cotyledons," observes the author of *Zoonomia*, "seem to be designed for the purpose of expanding a greater surface for the termination of the *placental* vessels, in order to receive oxygenation from the *uterine* ones: thus the progeny of this class of animals are more completely formed before their nativity than that of the carnivorous classes. Calves therefore and lambs can walk about in a few minutes after their birth; while kittens and puppies remain many days without opening their

their eyes." If any further testimony be necessary to show that the augmentation of muscular energy is the result of a nice combination of oxygen with the animal organs, many interesting facts might be adduced in confirmation of its truth. We generally find the strength of an animal proportionate to the extent of its chest: hence an attention to the "*animosum pectus*" has been attended with the improvement of our breed of cattle; and it is in consequence of a great extent of pneumatic receptacle that birds are enabled to bear the prodigious muscular exertion of flight. Is it not probable, too, that the repeated suspirations of the fatigued are instinctive exertions to procure a greater proportion of oxygen, by which their muscular energy may be revived? I must not quit the subject of this follicle, without noticing a very curious fact well known to every one employed in the concerns of a farm-yard,—that, if the obtuse extremity of an egg be perforated with the point of the smallest needle, (a stratagem which malice not unfrequently suggests,) its generating process is arrested, and it perishes like the *subventaneous* egg. Hence Sir Busick Harwood was led to suspect that the elastic fluid contained in the air-bag was oxygen, and I was induced to examine its nature. Can this curious problem be solved, by supposing that the constant ingress of fresh air is too highly exciting? A parallel example may be adduced from the vegetable kingdom in support of such an opinion. The young and tender plant, before it puts forth its roots, is often destroyed by having too free a communication with the atmosphere, by which its powers are exhausted: it is to obviate such an effect, that the horticulturist, taught only by experience, covers it with a glass, by which he limits the extent of its atmosphere, and consequently decreases its respiration, transpiration, and the inordinate actions which would prove fatal to it.

 I shall

I shall close this paper with a few observations on the formation of the exterior *involucrum*, or shell, by which this microcosm is defended from external violence. We here detect a single operation, at once answering two of the wisest and most important purposes of the animal: it at once averts destruction from the individual, and contributes essentially to the preservation of its species; for, whilst it removes the calcareous matter, which, if allowed to accumulate, must render the bird incapable of flight, and defeat the best purposes of its existence, it furnishes the germ of the future animal with a strong and convenient defence. The eggs of birds are, however, sometimes destitute of this provision, which I think may arise from the secretion of calcareous matter not keeping pace with the exuberant production of the fluids of the egg. Hence we perceive this imperfection oftener occurring in strong birds, and in the months of harvest, when their food is more luxuriant and abundant. The experiments of Vauquelin, which prove that the quantity of calcareous matter voided by birds exceeds that taken in, suggested to Fordyce, that birds must require calcareous matter during their laying, and that, if the animal be deprived of it, the shell is never formed. Such a theory, however, is not only derogatory to the wisdom of nature, but illegally deduced from the experiments themselves. Are we to expect, from our imperfect notions of elementary bodies, to explain the origin of every substance found in the animal œconomy, or the series of changes which it undergoes? Nature has her own laboratory, and is capable, without any foreign aid, of preparing the ingredients necessary for her productions. That a deficiency of calcareous matter in the system is the cause of the absence of the shell, no one will deny; but that this depends on some internal state, and not on the privation of lime, may be shown by the following curious circumstance.

A hen,

A hen, which I kept for some experiments, had its leg broken in two parts. The fracture was carefully bandaged; three days subsequent to which, several eggs destitute of shells were found on the premises. The hen had deposited no perfect eggs, nor were there any other birds from which these yolks could have proceeded: I therefore conjectured that all the *calcareous matter* designed for the formation of the shell had been employed in the regeneration of the bone. We find a similar law existing in the human species. The reunion of a bone fractured during a woman's pregnancy is often delayed until her delivery; and it is well known, that, if the horns of a deer be broken at the rutting season, it is incapable of procreating its species.—I remain, dear Sir, with great esteem,

Yours faithfully,

JOHN AYRTON PARIS.

Westminster,
November 30, 1808.

XII. *Some Observations on the Parts of Fructification in Mosses; with Characters and Descriptions of Two New Genera of that Order.* *By Mr. Robert Brown, Lib. Linn. Soc.*

Read June 20th, 1809.

THE account which the celebrated Hedwig has given of the sexes of Mosses, seems to be founded on so ample an induction, and is now so generally received, that it must be necessary to notice the arguments which mere theoretical Botanists have from time to time produced against it. There is, however, one author, Mons. Palisot Beauvois, who has not only objected to the account of Hedwig, but has proposed a theory of his own, and who consequently appealing to actual observations, and appearing to have particularly studied, specifically at least, this tribe of plants, merits some attention. The earliest account of Mons. Beauvois' theory is to be found in the observations added to the order Musci in the Genera Plantarum of Jussieu; and it was soon after more fully given by the author himself, in a Memoir on the Sexual Organs of Mosses, published in the third volume of the American Philosophical Transactions: since that time he has in his different works occasionally treated of the same subject, and has lately repeated the substance of his original essay, in the introduction to his "*Prodrome de Cinquieme et Sixieme Familles de l'Æthiogamie,*" published at Paris in 1805, a translation of which is given by my friend Mr. Konig, in the second volume of the Annals of Botany. To this work, as it must be

be in the hand of every scientific botanist, I refer for a full account of M. Beauvois' hypothesis, and confine myself to observing, that what is generally called the capsule of Mosses is by him considered as the containing organ of both sexes; that the granules which Hedwig supposes to be seeds, he regards as pollen; the real seeds according to him being imbedded in the substance of that body which occupies the centre of the capsule, and to which botanists have given the name of *columnula* or *columella*. The supposed seeds of this author, however, having entirely escaped the two most acute and experienced observers in this department of botany, Schmidel and Hedwig, in all the species of which they have given dissections, it might fairly be concluded that they are not of universal existence, and this alone would be sufficient perhaps to overturn the hypothesis. But it would be more satisfactory, if, while the accuracy of these excellent observers was confirmed in other instances, the cause of that appearance, which I apprehend has misled M. Beauvois, could at the same time be pointed out. The species more particularly described and figured by him in the American Transactions, is *Hypnum velutinum*; which therefore, had it been in a proper state, I should have preferred as the subject of my examination; but as he asserts that his observations were repeated, and with similar results, on all the species of Mosses found in the neighbourhood of Paris and Lisle, I have chosen *Funaria hygrometrica*, perhaps the most general plant in existence; which therefore must have been examined by him, and is within the reach of every one.

As, according to M. Beauvois, the action of the pollen on the seeds does not take place till the separation of the operculum, he probably did not conceive it necessary to observe the capsule until it had acquired its full size, and was in fact nearly ripe,

or,

or, as he terms it, in blossom. At this period he examined under the microscope a transverse section of the capsule, in which, as appears both from his description and figure, he found a dense stratum of granular matter, which he considered to be pollen, situated immediately within the inner membrane; while in the substance occupying the centre, which he describes as reticulated, he observed scattered granules, in size and appearance like those of the pollen already mentioned: these he regards as the genuine seeds, and the containing organ he calls the capsule.

It is remarkable that he no where expressly states the manner in which this capsule bursts: but it may be inferred, from the use he assigns to the peristomium, that he supposes it to eject its contents by the upper extremity: for, if the bursting were lateral, the seeds would at once come into contact with the pollen: but though impregnation would in this way more certainly be accomplished, the motions of the ciliæ could no longer be considered as in any degree assisting it.

Desirous to examine an object as nearly similar as possible to that on which the hypothesis appears to be founded, I in the first place made a transverse section of the full grown but green capsule of *Funaria hygrometrica*; and, I confess, was both surprised and disappointed to find it, under the microscope, exactly resembling M. Beauvois' figure [18]. But little reflection, however, was necessary to show that these scattered granules might either have been forced into the pulpy central substance, by the pressure necessarily applied to the stratum of pollen in making the section, or, what is more probable, been carried over its surface by the cutting instrument, which had previously passed through this stratum. Accordingly, by repeated immersion in water, and more readily still by the careful application of a small hair

pencil,

pencil, the greater part of the granules was removed. A transverse section at an earlier stage of the capsule, before the falling of the calyptra, exhibited, as I expected, fewer granules on the substance of the columella, and which were removeable in like manner. Lastly, by a longitudinal section, in which, if well performed, the scalpel could not be supposed to carry any part of the pollen over the surface of the columella, I obtained a distinct view of this part, perfectly free from these supposed seeds, and evidently consisting of large cells filled with an uniform pulpy substance; a continuation of which occupied the cavity of the operculum.

From these observations, even added to those of Schmidel and Hedwig, though they seem conclusive against the hypothesis of M. Beauvois, I by no means pretend to reason strictly respecting the whole order: on the contrary, from the conversations I have had with my ingenious and accurate friend Mr. Francis Bauer, as well as from some observations of my own, I am disposed to believe that considerable diversities may exist in the placentation of Mosses: that in some cases the seeds may be formed in a much greater portion of the columnula than in others: and it is even not improbable that in certain cases its whole substance may be converted into seeds; or, to speak more accurately, that it may produce seeds even to the centre, and that the cells in which they were probably formed may be re-absorbed. This I am inclined to think is the case in *Phascum alternifolium* of Dickson, in the ripe capsule of which there is hardly the vestige of a columnula; and I have observed the same structure in two new species of *Anodontium* of Bridel; which, if it equally exists in the only species of this genus hitherto described, would perhaps considerably strengthen its character. In these cases the inner membrane is also evanescent; and such a struc-

a structure, it may be remarked, equally militates against M. Beauvois' theory, whether we suppose the columella to have existed at an earlier stage, in the usual form, or not.

As to this organ being tubular, and discharging its contents by the top, it is neither consistent with what has been already observed, nor with the appearance of its remains in the ripe capsule: but admitting for a moment its tubular nature, there are certain Mosses in which no discharge could possibly take place in the way described; the column being elongated even to the apex of the operculum, to which it often continues to adhere, as in *Buxbaumia*, and in the first of the two new genera which I now proceed to describe.

DAWSONIA.

Peristomium penicillatum, ciliis numerosissimis capillaribus rectis æqualibus e capsulæ parietibus columellâque (!) ortis.

Capsula hìnc plana, indè convexa.

Calyptra exterior e villis implexis, *interior* apice scabra.

Muscus *hìnc arctè affinis* Polytricho, *quo cum foliis, floribus masculis, et calyptrâ penitùs convenit; indè, aliquo modo.* Buxbaumiæ *accedens, præsertim figurâ capsulæ, et structurâ columellæ.* Peristomio *autem ab omnibus diversissimus.*

Dawsonia polytrichoides.

Tab. XXIII. *Fig.* 1.

Patria. Novæ Hollandiæ ora orientalis, extra tropicum.

Statio. Ripæ subumbrosæ rivulorum, ad radices montium, in vicinitate Portûs Jackson.

Desc. *Cæspites* laxi, amorphi. *Radiculæ* tenuissimæ, tomenti instar

instar caudicem descendentem brevem investientes. *Caulis* simplicissimus, erectus, strictus, 2—3-uncialis, basi reliquiis foliorum squamatus, suprà densè foliatus. *Folia*, e basi dilatatâ semiamplexicauli membranaceâ fuscâ, lineari-subulata, opaca, viridia, marginibus longitudinaliter dorsoque apicis denticulatis, spinulis sursum crebrioribus majoribusque, concaviuscula, patula, siccatione appressa, canaliculata, superiora vix semuncialia, inferiora sensim breviora.

Masculi Flores terminales, discoidei. *Folia perigonialia* cuneato-orbiculata, mucronata, integerrima, semimembranacea, exteriora sensim majora. *Fila succulenta* numerosa, articulata, basi attenuata. *Antheræ* flosculi singuli 6—8, cylindraceæ, brevissimè pedicellatæ.

Femineus Flos in distincto individuo. *Seta* terminalis, solitaria, erecta, lævis, nitens, rufo-fusca, caule ter brevior, foliis terminalibus duplò longior. *Vaginula* cylindracea, stricta, glabra, tegmine pilorum calyptræ exterioris instar instructa.

Calyptra duplex: *exterior* constans pilis intertextis dimidio inferiore tenui flexuoso pallido ramuloso edentulo, superiore ferrugineo stricto denticulato: *interior* membranacea straminea, capsulæ maturæ subulata, suprà longitudinaliter fissa, apice solùm denticulata.

Capsula nutans, angulum ferè rectum cum setâ efformans, ovata, per lentem reticulata, areolis subrotundis, sordidè fusca, lævis, nonnitens, suprà plana marginibus acutis, subtùs modicè convexa ore coarctato, marginato. Apophysis nulla.

Operculum conico-cylindraceum, capsulâ brevius, apice lateris superioris in mucronem levissimè incurvum producto, basi incrassatâ, cum calyptris sæpissimè deciduum.

Peristomium penicillum densum album referens, longitudine circiter dimidii capsulæ, formatum *Ciliis* indeterminatìm nu-

 merosissimis

merosissimis (200 et ultra) capillaribus inarticulatis æqualibus rectis albis opacis, pluribus e capsulæ parietibus ortum ducentibus, centralibus (circiter 50) columellam terminantibus!

Membrana interior capsulæ maturæ exteriori approximata, vasculisque numerosis connexa.

Columella longitudine capsulæ maturæ, in quâ latiuscula, corrugata, colli brevis margine incrassatâ, intra cilias desinens in processum filiformem solidum indivisum apicem operculi attingentem eique arctiùs adhærentem.

Semina minutissima, lævia, in cumulo viridia, seorsùm hyalina.

Obs. I. I have named this remarkable genus in honour of my esteemed friend Dawson Turner, Esq., a gentleman eminently distinguished in every part of Cryptogamic botany, and from whom, after he has finished the incomparable work on *Fuci*, in which he is now engaged, we may expect a general history of Mosses.

Obs. II. The strict relationship between *Dawsonia* and *Polytrichum* in most respects, and the striking dissimilarity of their peristomiums, may tend, perhaps, in some degree to lessen our confidence in the characters derived from that part; for there seems in this case but little analogy between the two structures. The better to understand that of *Polytrichum*, I was induced along with Mr. Turner to examine it in the unripe capsule: in this state the cavity of the operculum was found completely filled with a cellular pulp, similar to that composing the columella, of which it appeared evidently to be a continuation: to the surface of this pulp the teeth of the peristomium were closely pressed, but did not adhere: by degrees the pulp dries up, and in the ripe capsule leaves only the membrane or tympanum of an inorganic appearance, and firmly

firmly cohering with the teeth by the inner side of their apices. It does not therefore properly belong to the operculum, though in some cases it may adhere to it, as does the analogous process of the columella in *Dawsonia* and in several other Mosses.

The affinity of *Dawsonia* to *Buxbaumia* is certainly less strict than to *Polytrichum*, and rests chiefly on the similarity of the figure of the capsule, and in the central process of the columella, which is still more evident in *Buxbaumia*, where it forms part of the Linnean generic character, though unaccountably overlooked by Schmidel in his masterly dissertation; but, if I mistake not, actually represented by him [in fig. 14, b, *l. c.*], and confounded with the peristomium, which in this case, I suppose, had adhered to the operculum, as I have repeatedly found it to do, and thus escaped his notice. Hedwig considers the plaited membrane which constitutes the peristomium of *Buxbaumia*, as derived from the inner membrane of the capsule, and quotes the figure just mentioned of Schmidel in proof of this origin. In both species, however, I find it arising from the exterior membrane, though considerably within its margin, which in *Buxbaumia aphylla* is said by Hedwig to be divided into teeth,—an appearance I could not observe in the few ripe capsules I have dissected. In other respects, the two species seem essentially to agree, and therefore ought not to be separated, as Ehrhart and some late writers have done. The generic character comprehending both, I would propose to alter in the following manner.

BUXBAUMIA.

Capsula obliqua, hìnc convexior, v. gibba.

Peristomium intra marginem, quandoque dentatum, membranæ exterioris ortum, tubulosum, plicatum, apice apertum.

LEPTOSTOMUM.

Capsula oblonga, exsulca; *Operculo* hemisphærico, mutico.
Peristomium simplex, membranaceum, annulare, planum, indivisum, e membranâ interiori ortum.

Musci *densè cæspitosi.* Caules *erecti, annotino-ramosi.* Folia *undique modicè patentia, latiuscula, nervo valido, marginibus integris, revolutis, pilo (quandoque ramoso?) terminata.* Seta *terminalis.* Capsula *erecta, v. inclinans, basi in apophysin obconicam attenuata, ore coarctato.* Calyptra *glabra, lævis, caduca.*

1. L. *inclinans*, foliis ovato-oblongis obtusis; pilo simplici, capsulis inclinatis obovato-oblongis.

Tab. XXIII. *Fig.* 2.

Patria. Insula Van-Diemen.

Statio. Rupes et saxa ad latus orientale prope summitatem Montis Tabularis Lat. Aust. 43°, elevatione supra mare 3000 ad 3500 ped.

Desc. Muscus lætè virens 2—3-uncialis. Caules parùm divisi, infrà tomento denso ferrugineo vestiti, suprà confertim foliati. Folia concaviuscula per lentem minutissimè punctato-areolata, pilo tortili ipso folio quater breviore. Seta fusca, lævis. Vaginula infrà stipata adductoribus pluribus filisque succulentis capillaribus articulatis.

2. L. *erectum*, foliis oblongo-parabolicis obtusis; pilo simplici, capsulis erectis oblongis.

Patria. Novæ Hollandiæ ora orientalis, extra tropicum.

Statio. Rupes prope fluviorum ripas, in regione montanâ; ad fluvios Hawkesbury et Grose.

Desc. Muscus 2—3-uncialis. Caules simplices et subramosi, infrà

infrà tomento ferrugineo vestiti, suprà densè foliati. Folia siccatione parùm curvata et simul adpressa. Seta elongata, fusca, lævis. Capsula æquilatera. Operculum delapsum fuit.

3. L. *gracile*, foliis ovato-oblongis acutiusculis; pilo simplici folii dimidium æquante, capsulis oblongis æquilateris inclinatis.

Patria. Nova Zelandia.

Statio. Umbrosa humida (?) ad Dusky Bay. *Dom. Arch. Menzies.*

Desc. Caules subramosi. Folia siccatione adpressa, areolato-punctata. Seta elongata, lævis. Vaginula cylindracea, filis succosis adductoribusque numerosis cincta.

4. L. *Menziesii*, foliis oblongo-lanceolatis acutis; pilo simplici folio quater breviore, capsulis oblongis inclinatis arcuato-recurvis.

Patria. Americæ Australis Staten-Land, ubi anno 1787 detexit *Dom. Arch. Menzies*, cujus amicitiæ hanc et præcedentem speciem debeo.

Statio. -----

Desc. Muscus lætè virens, sesquiuncialis. Caules subsimplices, basi ferrugineo-tomentosi, suprà confertim foliati. Folia erecto-patentia, siccatione adpressa, minutissimè areolata, v. punctata. Seta caulem sæpiùs superans, erecta, fusca, lævis. Capsula subfalcata ad angulum acutum rariusve ferè rectum inclinans.

Obs. The plants which I have referred to this genus are all natives of the southern hemisphere, and in their habit, in which there is something peculiar, strictly agree with each other, and with *Bryum macrocarpum* of Hedwig. In three of

of the four species here described, I have had the opportunity of removing the operculum without having been able in any case to observe an external peristomium, which, from the appearance of these plants, might be expected to exist, and which Hedwig has figured in his *Bryum macrocarpum*. Of this plant I have only seen specimens that had lost the operculum: the mouth of the capsule, however, seemed to be very perfect, and was furnished with a membrane, exactly as in the species here described, but I could not perceive any remains of external teeth. In opposition to such authority, however, I do not venture to add it to this genus, to which in every other respect it seems to belong.

The character of *Leptostomum*, derived from the undivided annular process of the inner membrane of the capsule, may to many appear too minute, and perhaps unimportant; and had it been observed in one species alone, I should not have ventured on that account to distinguish it as a genus: but finding it in four species, accompanied too with a habit widely different from that of *Gymnostomum*, to which these plants must otherwise be referred, I have not hesitated to employ it. As, however, Hedwig has actually figured and described an external peristomium in his *Bryum macrocarpum*, whose striking resemblance to *Leptostomum* has been already noticed, there may be still some reason to doubt the sufficiency of the generic character, and it may seem somewhat improbable that Mosses of such a habit should be really destitute of an outer peristomium. But, without questioning the accuracy of Hedwig in this instance, I may be permitted to observe, that the outer peristomium which he has figured in *Bryum macrocarpum* is extremely unlike that of any other genus where the fringe is double: and

and it may perhaps in some degree tend to strengthen the character of *Leptostomum*, to advert to what appears to be really the case in certain species of *Pterogonium*, in one of which* Mr. Hooker has already described the fringe as derived solely from the inner membrane; and I have collected, on the mountains of Van Diemen's Island, a moss with a peristomium decidedly of like origin; a circumstance that appeared to me so remarkable, that I had actually described it as a distinct genus, before I was aware of the similar structure of the Nepal plant described by Mr. Hooker; or of the probability, from Hedwig's own figures, that some at least of his *Pterogonia* were of the same structure; a point that I have not at present the means of determining, but which I beg leave to recommend to the attention of those botanists who are provided with perfect specimens of the published *Pterogonia*.

EXPLICATIO TABULÆ XXIII.

Fig. 1. Dawsonia polytrichoides. *a.* Mascula planta magnitudine naturali. *b.* Discus masc. auctus. *c.* Ejusdem flos unicus. *d.* Idem absque folio perigoniali, magisque auctus. *e.* Anthera et filum succulentum maximè aucta. *f.* Femineæ plantæ magn. nat. *g.* Vaginula cum foliis perichætialibus auctis. *h.* Capsula cum calyptra exteriori. *i.* Pili calyptræ exterioris magis aucti. *j.* Capsula cum operculo et calyptrâ interiori. *k. l.* Capsula deoperculata cum peristomio. *m.* Capsulæ sectio ejusdem figuram insertionemque ciliarum ostendens. *o.* Calyptra interior. *p.* Operculum cum colu-

* Pterogonium declinatum. *Trans. Linn. Soc.* ix. *p.* 309.

mellæ

mellæ processu filiformi. *q*. Columella ciliis suis terminata. *r*. Semina. *s*. Ciliæ peristomii auctæ.

Fig. 2. Leptostomum inclinans magnitudine naturali. *α*. Ejusdem capsula aucta cum membranâ annulari. *β*. Operculum. *γ*. Idem a basi visum cum annulo cohærenti.

XIII. *Descrip-*

Fig. 1.
Fig. 2.

XIII. *Description of Seven new Species of Testacea. By William George Maton, M.D. F.R.S. & A.S. and V.P.L.S.*

Read Nov. 7, 1809.

The shells which I am about to describe were referred to me by the Right Hon. Sir Joseph Banks, Bart., K.B., who received them from the æstuary of the *Rio de la Plata*, and who, with his usual liberality, obligingly presented me with specimens, and permitted me to lay a description and figures of them before the Linnean Society.

It is singular that so many new species should have been found collected together in one spot, and still more so, that no one species before described should have formed part of the assemblage. I am induced to think that they were brought down together by some of the tributary streams of the *Rio de la Plata*, from interior parts of the South American continent not hitherto explored by conchologists; the *name* of one of these streams proves that it abounds with natural productions of this tribe, for it is called *Rio di Conchas*. Many of the bivalves were found enveloped in the gelatinous *matrix* (if it may be so denominated) in which they were first deposited, and to which probably all testaceous creatures remain attached (unless removed by mechanical violence) until the calcareous covering which is to form their protection has acquired the requisite degree of firmness. In the present instance, this *matrix*, in its dry state, forms a tough, but

 thin,

thin, semitransparent substance, not unlike bladder in texture, and soluble in nitrous acid. The young shells are attached to it by their *epidermis*, which, in fact, seems to be merely a membranous expansion of the same substance, and to take its origin from it for the purpose of confining the animal during the formation of the shell. In some species, the attachment of the membrane is so loose, that it is thrown off very soon after the animal is set at liberty; but in others it remains firmly adhering to the calcareous matter during life. Most *fluviatile* shells retain this covering more or less entire, and it is the case with all the species hereunder described, in all their stages of growth. The membrane by which the calcareous matter of the shell is secreted, or deposited, is of a very different nature, and has a more immediate connexion with the contained animal.

1. Mya labiata.

Tab. XXIV. *Fig.* 1, 2, 3.

Mya testa subovali, valvis occlusissimis, alterius margine l abii instar) prominente.

Habitat in America australi, fluviatilis.

Testa firma, transversim striata, epidermide viridi, leviore, deciduâ, intus margaritaceo-polita, anterius subrostrata. Cardinis dens alterius valvæ solidus, subcochleariformis, antrorsum porrectus, foveæ triangulari valvæ oppositæ insertus. Margo hujus (è regione cardinis) quasi truncatus, illius rotundatus, subtenuis. Umbones parum prominentes.

I have not mentioned the size of *Mya labiata* in the above description, not thinking myself warranted so to do, unless I had seen a great number of specimens. Those from which the characters were taken are all of the same size, and about 1 inch in

length,

length, and rather more than ½ an inch in width. It is one of the most remarkable bivalves with which I am acquainted, part of the margin of one of the valves projecting over the corresponding part of the other, so as, exactly, to resemble a lip. It is fortunate when so striking a character presents itself, for the species cannot, in such circumstances, be mistaken.

2. Mya variabilis.

Tab. XXIV. *Fig.* 4, 5, 6, 7.

Mya testa subrhombea, gibbosa, umbonibus longitudinaliter corrugatis, cardinis dentibus duobus, apice divergentibus, foveis linearibus invicem insertis.

Habitat in America australi, fluviatilis.

Testa transversim striata, rugis sensim evanescentibus, epidermide viridescente-fuscâ, intus margaritacea, cærulescens, 1 poll. longa (ætate provectâ), vix 1 poll. lata. Margo anterius subangulatus, apud cardinem rectus.

Testa junior minus gibba, subrhomboidea, fragilis, subdiaphana, colore intus purpurascente, rugis multò prominentioribus et ferè ad marginem usque divergentibus.

This species varies extremely in its structure and *contour*, according to its several stages of growth; and, if I had seen only the youngest and the oldest shells, without having had opportunities of comparing those of intermediate ages with each, I should most probably have given them separate places in the genus. There can be no doubt that many other *testacea* (especially in the *genera* of *Mya* and *Mytilus*), at present considered as distinct species, will, from the occurrence of similar opportunities, be found to owe their difference of form solely to difference of age. The most striking character in the younger specimens

of *Mya variabilis* is the radiating *rugæ*, or plaits, which proceed from the *apex* of the *umbones*, and cover nearly the whole of the shell. This circumstance, added to some others, induced me, at first, to look upon this shell as a variety of *Mya corrugata*, of Müller (*Hist. Verm. terr. et fluv.* 2. p. 214. n. 398), but, on consulting the figures of that species given in the *Beschaft des Gesell. Naturf. Freunde zu Berlin*, (tom. 4. p. 35. tab. 3. f. 7. 8), and by Schröter (*Flussconch.* n. 182. tab. 9. f. 3), I at length decided to the contrary, its habit being totally different, though, from the ambiguity of the description given in Gmelin, I might have made a very gross mistake, had I been unable to consult the authors just mentioned. In fig. 6 of the plate annexed to this paper, it will be seen that the *rugæ*, though so strong over the whole of the younger shell (fig. 5), are very indistinct as they pass towards the margin, and in fig. 4, the oldest of the three specimens, they are almost obsolete, except on the decorticated *umbo*: it will be remarked also, that the outline of the shell becomes totally different at its full growth, gradually verging from a subrhomboidal, or somewhat obliquely oval, to a subrhombic or almost orbicular form. As these differences are so marked, no person, I conceive, who duly considers the facts which I have mentioned, will be liable to separate *Mya variabilis* into several species.

3. Tellina limosa.

Tab. XXIV. *Fig.* 8, 9, 10.

Tellina testa æquivalvi, ovata, transversim striata, intus purpurea, umbonibus acutiusculis prominentibus.

Habitat in America australi, fluviatilis.

Testa vix fragilis, glabra, epidermide viridi, margine integro, ¾ pollicis longa, ½ pollicis lata.

Fig. 10.

Fig. 10. *Testa junior*, colore extus et intus pallidior, tenuior, subdiaphana.

I have no particular remarks to make on this species, except that it has a good deal of the habit of a *Mactra*. Having no striking character, as to either its figure or colour, it is very liable to be confounded with some other species, though I have endeavoured to describe it with precision; and, had the describers of those shells which are most nearly allied to it been less ambiguous in their definitions, I should not fear that there would be any mistake in referring to its name.

4. Mytilus membranaceus.

Tab. XXIV. *Fig.* 11, 12.

Mytilus testa subrhombea, fragillima, margine anteriore angulata.

Habitat in America australi, fluviatilis.

Testa subdiaphana, 1 poll. longa et lata, subventricosa, ferè membranacea, intus submargaritacea, glaberrima, transversim delicatissimè striata, colore extus viridescente, figura ferè *Myæ variabilis* senioris. Margo ad cardinem rectissimus. Cardo edentulus. Umbones acuti.

I have given the trivial name of *membranaceus* to this *Mytilus*, on account of its extremely thin and tender texture, which forms its most obvious character. The *contour* approaches so nearly to that of *Mya variabilis* in its perfect state, as to render it desirable that they should both be placed in the same genus, did not the hinges so materially differ: in fact, many of the *Myæ* and *Mytili* belong to one natural family, and there is often much difficulty in determining under which name a particular species ought

ought to be placed, for Linnæus has not made the absence of teeth an indispensable character for a *Mytilus*, and some of that genus gape like the *Myæ* at one extremity.

5. VOLUTA FLUVIATILIS.

TAB. XXIV. *Fig.* 13.

VOLUTA testa subovali, pellucida, lævi, columella biplicata, apertura integra.

Habitat in America australi, fluviatilis.

Testa vix $\frac{1}{2}$ poll. longa, ultra $\frac{1}{4}$ poll. lata, tenera, flavescente-viridis, maculis brunneis transversim lineato-notata. Anfractus rotundati. Spira prominula.

6. VOLUTA FLUMINEA.

TAB. XXIV. *Fig.* 14, 15.

VOLUTA testa obovata, cornea, longitudinaliter delicatissimè striata, apertura integra, columella biplicata, apice acuto, brevissimo.

Habitat in America australi, fluviatilis.

Testa magnitudine precedentis, at ventricosior, anfractibus magis depressis, apice verò tenuior, colore pallidior, obsoletè lineato-maculata, lineis distantioribus.

These *Volutæ* are so nearly allied to each other, that I hesitated at first to consider them as distinct species; yet the characters given above, it is presumed, will sufficiently authorize their separation. The shape of *V. fluviatilis* is almost a perfect oval, but that of *V. fluminea* is obliquely ovated. This variation might be attributed to difference of age, were not the specimens all of equal

equal size; and it ought, moreover, to be remarked, that the latter of these species is most beautifully striated, an appearance not distinguishable in the other, though perhaps obliterated chiefly by the deeper colour and larger size of the spots, which show themselves very strongly quite through to the interior of the shell; the uppermost line of spots, however, on the gibbous part of *V. fluminea*, is pretty deeply marked. There are but few fluviatile shells in this genus, and the two here described are not likely to be confounded with any of them.

7. Helix Platæ.

Tab. XXIV. *Fig.* 16, 17.

Helix testa perforata, subglobosa, lævi, alba, lineis transversis geminis, apertura interrupto-ovali, labio acutiusculo.

Habitat in America australi, fluviatilis.

Testa diametro $\frac{3}{4}$ pollicis, solidula, epidermide lutescente, lineis purpurascente-brunneis nunc geminis, nunc solitariis et latioribus transversim cincta, labio lacteo in columellam apud umbilicum replicato. Anfractus 4—5, parum rotundati. Spira acuminata.

This is a very elegant species; but, as the number of *Helices* contained in Gmelin's edition of the *Systema Naturæ* is so large, I ought not to pronounce it new with too much confidence. No description given by that author, however, can I consider as applying to the shell which I have here named; nor is the latter very liable to be confounded with others before known, because such of the fluviatile tribe as are elegantly banded are comparatively few. I have taken its trivial name from the *Rio de la Plata.*

Before

Before I conclude this paper, I ought to express my obligation to Mr. James D. Sowerby for the very accurate and excellent drawings with which he has kindly enabled me to illustrate the preceding descriptions, and without which my endeavours to render myself clearly understood might have been very far from being successful.

XIV. *An*

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

XIV. *An Account of several Plants, recently discovered in Scotland by Mr. George Don, A.L.S., not mentioned in the Flora Britannica nor English Botany. By James Edward Smith, M.D. F.R.S. P.L.S.*

Read Nov. 21, and Dec. 5, 1809.

NOTWITHSTANDING the numerous additions to the British Flora, owing to the labour and acuteness of various observers, especially of Mr. Dickson, within the last 20 years, new discoveries, of the most interesting nature, are continually rewarding the zeal of new votaries to botany. I need only advert to the *Buxbaumia aphylla*, the abundance of new Lichens, *Fuci* and *Confervæ*, and the numerous *Salices*, which are amongst our more recent acquisitions, in proof of my assertion.

The richest harvest we have for a long time had, was communicated to me in the course of last summer by Mr. George Don of Forfar, whose scientific merits and eminent zeal are sufficiently known to the Linnean Society. I have chosen a part of these treasures for the materials of my earliest tribute to the Society, at its first meeting for this season, after the long vacation. The plants shall be enumerated in systematic order, with such remarks as I may think useful or amusing to British botanists, accompanied by characters and descriptions of such species as, from their novelty or obscurity, may require that sort of illustration.

 1. AIRA

1. AIRA *lævigata* *,

foliis planis; vaginis lævissimis, paniculâ coarctatâ, petalis aristatis basi villosis, rachi glabrâ brevissimâ.

Found on the high mountains of Clova in Angusshire, as well as at the sea-side near Dundee. In the former situation it is viviparous; in the latter not so. This grass appears to have been overlooked as a viviparous alpine variety of *Aira cæspitosa.* At least, so Linnæus, who received it from Lapland by means of some one of his travelling pupils, considered it; and probably it is the supposed variety, mentioned on the authority of the Rev. Hugh Davies, in the *Flora Britannica.* Mr. Don, however, justly remarks, that it differs from the *cæspitosa* in never being above a foot, or foot and half, high, even when cultivated in a rich moist soil; as well as in the great smoothness of the herbage when drawn through the hand. For, though the edges of the leaves are rough, their sheaths and backs are remarkably smooth. My acute correspondent thought he had ascertained a further difference, in the absence of the woolliness at the base of the flowers. This, however, I find not exactly the case; but the remark has led to the detection of a curious specific character in those parts. This consists in the extreme shortness, and perfect smoothness or nakedness, of the little partial stalk which elevates one floret, while the very base of each floret is bearded. In *A. cæspitosa* thep artial stalk itself is hairy all over, and of a much greater length than in our *lævigata.* Mr. Don informs me that the latter flowers a month earlier than *cæspitosa.* The root is fibrous and perennial.

The examination of this grass in its viviparous state, teaches us one mode in which that phænomenon takes place, and which

* *Engl. Bot. t.* 2102.

is

is perhaps the only mode with respect to grasses. This is by an absolute transmutation, more or less complete, of the glumes of the corolla into leaves. That such is the case, is evident, not only from the change being mostly incomplete, part of the glume retaining its natural state, but also from the awn terminating the newly-formed leaf. Indeed it often seems as if the lower part only of the awn itself had become leaf, the glume which bears it remaining unchanged. The gay petals of a tulip often become in part or entirely leaves. Why may not this happen to a grass? It seems that the organs of impregnation are starved and obliterated in such viviparous florets of this *Aira*, and not as some have supposed concerning other alpine viviparous grasses, that those parts are themselves transformed into a *gemma*, or leaf-bud; still less is the leafy appearance caused by the seeds vegetating in their husks, as Lightfoot thought of *Poa alpina*, and perhaps *Festuca vivipara*. It is possible indeed that the stamens, and even pistil, of all such grasses may be capable of change into leaves, as well as the corolla, though I have not found it so in this *Aira*.

2. AVENA *alpina**,

paniculâ erectâ subsimplici, calycibus subquinquefloris, receptaculis apice barbatis, foliis serrulatis nudis; vaginis scabris.

Discovered in 1807, on rocks upon the summits of the highest mountains of Clova, Angusshire. It is perennial, flowering in June.

This is a very fine species of *Avena*, and, as far as I can discover, perfectly new. I was inclined to refer it to *pubescens*, with which it most agrees in general aspect, but is larger in every part, and

* *Avena planiculmis*. *Engl. Bot. t.* 2141, and as I presume of Schrader's *Fl. Germ. v.* 1. 381. *t.* 6. *f.* 2; but Mr. G. Don thinks otherwise, and denies the flatness of the stem in his plant.

 Mr.

Mr. Don has indicated the following differences, which I find to hold good. The roots form a compact tuft, and are not at all inclined to creep. The leaves are never clothed with soft hairs, nor are their edges even, as in *pubescens,* but they are finely serrated, so that the two species are distinguishable, even in the dark, by the touch. In this last particular the leaves agree with *pratensis,* but differ from that in their rough and greatly elongated sheaths. The flowers differ from both those species, not only in their much greater size, but in their partial stalk, or *rachis,* the hairiness of which I observe to be crowded up into a very dense tuft, towards the base of each floret, not dispersed over the whole *rachis.*

This species bears the same relationship to *Avena pubescens,* that my *A. caryophyllea, Fl. Græc. t.* 89, does to *pratensis,* being larger, with a greater number of florets in each calyx. I wish however that the *caryophyllea* might prove as permanently distinct; upon which subject I shall take this opportunity of making some observations. That was one of the few Greek grasses, drawn by Mr. Ferdinand Bauer, of which I could find no specimens in Dr. Sibthorp's herbarium. I was therefore obliged to take their specific characters from the drawings; and I did so with confidence, having had such frequent experience of the fidelity of this excellent artist. The *rachis* of this *Avena* being delineated quite smooth, and that part having been resorted to by Linnæus in this genus for his specific differences, I seized upon it, in conjunction with the greater number of florets, to establish a specific character. But I have lately discovered specimens of this grass, along with most, if not all, of the others of the *Flora Græca* that were in the same predicament, quite out of their places, confounded amongst a heap of rubbish, which I had supposed not to belong to the Greek herbarium at all. Thus

then

then I am enabled to have recourse to Nature herself; and I find the *rachis* is actually hairy, exactly in the peculiar manner of that of *A. pratensis*, the greater number of florets, being about double, constituting the only distinctive character of the *caryophyllea*; for its leaves are rough-edged, and scarcely less involute than those of *pratensis*.

Such an occasional inaccuracy, in a science where such multiplied observations are necessary, can by no means detract from the reputation of Mr. Bauer, or any other artist. His original discoveries, and frequent improvements upon other observers, place him far out of the reach of any depreciation. The same may justly be said of the indefatigable Dr. Sibthorp, under whose inspection the drawing was made. Truth however renders my notice of the mistake indispensable.

3. Arundo *neglecta**,

calycibus unifloris corollam æquantibus, paniculâ erectâ diffusâ, floribus sparsis erectis aristatis, stipulâ brevissimâ.

A. neglecta. *Ehrhart Calamariæ n.* 118.

Discovered in June 1807, in a marsh called the White Mire, one mile from Forfar. Mr. Don never noticed it any where else, nor have I ever before seen any other specimens than the Upsal one in Ehrhart's *Calamariæ*; another sent by Dr. Swartz from Sweden, named "*A. stricta* of Timm," but not to be found in the *Flora Megalopolitana*; and a third in the Linnæan herbarium, laid into *Agrostis*, without a name, but with a Swedish inscription, signifying that "it was found by Solander on the Lapland alps, in Westbothland and at Ljumkil, and is very different from

* *Arundo stricta. Engl. Bot. t.* 2160. *Schrad. Germ. v.* 1. 215. *t.* 4. *f.* 5.

Agrostis

Agrostis arundinacea in its flowers, not to mention the smallness of its leaves."

In fact, this plant is next akin to *Agrostis arundinacea*, and like that is surely an *Arundo*, according to Linnæus's original determination in the *Flora Lapponica*. They both belong indeed to the genus which some have separated from *Arundo*, by the bad name of *Calamagrostis*, distinguished by having only 1 floret in each calyx, as do likewise *Arundo Calamagrostis* and *Agrostis Calamagrostis* of Linnæus. It seems to me that they may all very naturally be referred to *Arundo*.

Arundo neglecta is by far the smallest British species of its genus, being scarcely 2 feet high. It has something of the habit of *A. Calamagrostis*, but differs from that, as well as from all the species just mentioned, in having the glumes of the calyx simply acute, without any elongated point. The corolla moreover is as long as the calyx; its glumes abrupt and jagged, the larger bearing a short dorsal awn, scarcely projecting beyond the calyx, and not, like that of *Agrostis arundinacea*, twice as long. The root is creeping. Stem simple, with 2 joints, smooth, as are also the sheaths. The leaves are narrow, acute, rough on the upper surface and edge. Stipula very short, abrupt and entire. Panicle of a purplish or bronze-coloured brown.

It must be confessed that the first grass, described in the present paper, comes very near these just referred to *Arundo*, in the generic character founded on the hairs at the base of the corolla. But the hairs of *Aira lævigata* form a tuft at the base of the outer glume only, and, from the analogy of *Aira cæspitosa*, should seem rather to belong to the *rachis* than to the glume itself, however closely approximated to the latter. They do not, as in *Arundo*, grow out of, and entirely encompass, both glumes of the corolla.

4. Chæ-

4. Chærophyllum *aureum**,

caule tumidiusculo anguloso subpiloso, foliolis pinnatifidis acutis incisis, seminibus coloratis costatis.

Ch. aureum. *Linn. Sp. Pl. ed.* 2. 370; nec *Mant.* 356. *Jacq. Austr. v.* 1. 40. *t.* 64.

Cerefolium n. 749. *Hall. Hist. v.* 1. 328.

Myrrhis perennis alba minor, foliis hirsutis, semine aureo. *Rupp. Jen. ed. Hall.* 282. *t.* 5.

Found between Arbroath and Montrose, in the borders of fields; also at Corstorphine near Edinburgh; flowering in June. This species would scarcely be recognised by the specific name, which alludes to a very slight yellowness, or rather tawniness, in the ripe seeds. Linnæus originally confounded it with *Chærophyllum hirsutum*, from which it differs, even generically according to Haller, in not having furrowed but ribbed seeds. This difference escapes my powers of observation. More certain ones are to be found in the short soft deflexed pubescence, rarely entirely wanting, on the stem of our plant, with a few coarse hairs occasionally superadded, like those of *hirsutum*, but more deflexed: in the narrow, pinnatifid, sharp and elongated leaflets: and in the less dilated edges of the common footstalks, whose very base however, in the lower leaves, is remarkably annular and abrupt. The flowers are cream-coloured, with a reddish tinge occasionally. There are often one or two leaves of a general involucrum: the partial one consists of several ovate, pointed, fringed whitish leaflets. Seeds longish, with 3 elevated obtuse palish ribs to each. Styles permanent, divaricated.

The description under this name in the *Mantissa altera* was

* *Engl. Bot. t.* 2103.

made

made from an imperfect specimen of *Chærophyllum temulentum*, accidentally mistaken for the *aureum*, from which it widely differs.

5. Saxifraga *pedatifida*,

foliis radicalibus reniformibus pedatifido-septemlobis; caulinis palmatis linearibusque, caule subnudo ramoso, petalis lineari-obovatis.

S. pedatifida. *Ehrhart Exsicc. n.* 15.

S. quinquefida. *Donn Cant. ed.* 5. 107.

Found (by Mr. George Don) on the mountains of Clova, Angusshire. The same was sent to the Cambridge garden, some years since, from the Highlands, by the late Mr. J. Mackay. It comes nearest to *S. geranioides*, with which the Swiss botanists seem to have confounded it, but differs in the pedate form of the radical leaves, which are divided almost to the base, their lobes narrower and blunter than in that species. The petals too are much narrower, and the calyx-teeth less elongated after flowering. The true *S. petræa*, Jacq. Ic. Rar. t. 81, a plant known to very few botanists, has leaves divided in a somewhat similar manner, but the stem is much more leafy, and the petals emarginate, as in Pona's and Jacquin's figures.

6. Saxifraga *elongella*,

foliis aristatis trifidis quinquefidisve: basi elongatis; superioribus linearibus indivisis, pedunculis longissimis nudis.

S. elongella. *Donn Cant. ed.* 5. 107; ex nomine.

Gathered on a rock by a river called Lintrathen, a mile and half north of Airly castle, Angusshire. The late Mr. J. Mackay sent it formerly to Cambridge; at least if I am right in the synonym,

nonym, which cannot at this season be determined. Mr. George Don has favoured me with wild as well as cultivated specimens. The stems creep to some extent, throwing out numerous short leafy branches. Some of the leaves are linear and undivided; others, from a long narrow base, divide suddenly into 3 equal oblong lobes, the 2 outermost of which have sometimes a short lateral lobe; all are more or less fringed with soft hairs, and tipped with a small bristle. Neither the lobed nor the undivided leaves seem exclusively appropriated to any particular part of the plant, but those on the upper part of the flowering branches are always undivided. Such branches are erect, bearing seldom more than one large white flower, on a remarkable naked stalk, usually two inches long, erect and slightly glandular. In one luxuriant cultivated specimen there are five flowers on one branch. The germen is inferior. Calyx-teeth ovate. Petals obovate, entire, with three slender ribs separating a little above the base.

7. SAXIFRAGA *platypetala*,

foliis aristatis trifidis quinquefidisve, stolonibus procumbentibus, caule subfolioso, petalis obovato-orbiculatis.

Found on the mountains of Clova in Angusshire. We have the same gathered by Mr. D. Turner upon Snowdon. It has the habit of *S. hypnoides*; but the leaves are almost universally divided into three, sometimes five, lobes, a few on the upper part of the flowering stem only being undivided. The petals moreover are very different, being twice as broad, and almost orbicular, with three ribs, of which the central one is often deeply divided, while the others sometimes throw off numerous lateral branches towards the edge of the petal.

8. Lychnis *alpina,*

glabra, petalis bifidis, floribus corymbosis, foliis lineari-lanceolatis.

L. alpina. *Linn. Sp. Pl.* 626. *Fl. Dan. t.* 65. *Willd. Sp. Pl. v.* 2. 809.

Silene lapponica alpina, facie viscariæ. *Linn. Fl. Lapp. n.* 185.

On rocks near the summit of Clova in Angusshire, but very rare; first observed by Mr. Don in 1795.

This is a very pretty species, found in Switzerland, as well as on the Lapland mountains, so that we cannot wonder at its being a native of Scotland also, though never noticed before. It resembles *Lychnis Viscaria*, but is smaller and not viscid.

Some strange confusion has crept into the descriptions of this plant. Linnæus in his *Flora Lapponica* makes it a *Silene*, saying the styles are three. In the *Species Plantarum* it is properly referred to *Lychnis*, without mention of any anomaly in the number of the styles, which therefore must be understood to be five; but in the *Systema Vegetabilium* they are said to be four, and the petals are there described as destitute of a crown. Now in the original manuscript of Linnæus's Lapland Tour, where he first describes the plant in question, the styles are asserted to be five, and the petals to have a crown, formed of two teeth upon each petal, their border moreover being cloven half way down. Haller, in *Act. Helvet. v.* 6. 13. *n.* 46, says the petals are "plaited at their origin, with tumours but without auricles," and that "the styles are five." These two last accounts, taken from nature, may safely be relied on, and they agree with what I am able to discover in dried specimens, where I find the petals as distinctly crowned as in any *Lychnis* or *Silene* whatever. Willdenow is reprehensible for copying the erroneous specific character from the *Systema Vegetabilium* as if it were taken not from Linnæus but from Oeder

in

in the *Flora Danica*, who says nothing at all like it. It is remarkable however that Haller, in the first edition of his *Flora*, describes only three styles. Could this be copied from Linnæus, whose original error seems to have arisen from the obscurity of a figure in his own manuscript? It is, after all, possible that the styles may vary in number from three to five.

9. Potentilla *tridentata*,

foliis ternatis cuneiformibus: suprà glabris: subtùs pilosis: apice trifidis.

P. tridentata. *Ait. H. Kew. v.* 2. 216. *t.* 9. *Willd. Sp. Pl. v.* 2. 1110.

Discovered last summer on a mountain called *Werron*, and on some others to the westward, all in Angusshire. This, in Mr. Don's opinion, equals any of its genus, if it does not surpass them all, in point of beauty. It is not honoured with much distinction in our gardens, though sometimes seen there. The flowers are white. The plant in *Fl. Danica, t.* 799, *P. retusa Retz. Prodr.* 123, cited by Willdenow, has hairy leaves and yellow flowers, and must certainly be a different species.

10. Ranunculus *alpestris*,

foliis glaberrimis: radicalibus subcordatis obtusis tripartitis lobatis; caulino lanceolato integerrimo, caule subunifloro.

R. alpestris. *Linn. Sp. Pl.* 778. *Jacq. Austr. t.* 110.

By the sides of little rills, and in other moist places, about two or three rocks on the mountain of Clova, Angusshire, very rare, and but seldom flowering. Mr. Don suggests that "its herbage, bearing a great resemblance to several of its kindred, may easily have been overlooked, but when in blossom it is truly a splendid plant." The petals are inversely heartshaped, of a brilliant white.

 Calyx

Calyx smooth, bordered with white. The stem-leaf is often ternate. The radical ones, as Linnæus remarks, greatly resemble those of *R. aquatilis* that float on the surface, and in watery places may be mistaken for them.

11. Cochlearia *groenlandica,*

foliis reniformibus carnosis integerrimis, siliculis globosis.

C. groenlandica. *Linn. Sp. Pl.* 904.

C. minima, erecta et repens, insulæ Aalholmianæ. *Willius in Bartholin. Act. Hafniæ, v.* 3. 143. *f.* 144.

Found on the mountains of Clova, Angusshire, and Loch-negare, in August 1807. Mr. Don's specimen agrees with the authentic one in the Linnæan herbarium, and with Bartholin's two figures, especially with that which is branched. The radical leaves are extremely fleshy, convex beneath, about the size of a split pea, entire, and grow on long stalks. One or two of the stem-leaves are nearly sessile, more oblong, and approach towards the shape of *C. anglica,* having occasionally a tooth at each side of their elongated base. The pouch is globose, with a short style, as in *C. officinalis,* of which this may possibly be a variety, but it is not the same with the *groenlandica* of Withering. It is remarkable that the plant published by Bartholin is said to flower on the sea-shore in April, and to disappear entirely by the month of July; whereas Mr. Don gathered his in full bloom in August. May the alpine situation of the latter cause such a difference? The flowers are large, tinged with purple.

12. Crepis *pulchra,*

foliis pubescentibus dentatis; caulinis subsagittatis, caule paniculato corymboso, calycibus pyramidatis glabris.

C. pulchra. *Linn. Sp. Pl.* 1134.

Hieracium

Hieracium pulchrum. *Bauh. Hist. v.* 2. 1025.

H. montanum alterum leptomacrocaulon. *Columnn. Ecphr.* 248. *t.* 249.

Lapsana chondrilloides. *Linn. Sp. Pl. ed.* 1. 812.

Found in 1796 amongst crumbling rocks on the hill of Turin, to the east of Forfar.

The plant is not at present known in our gardens, though said to have been cultivated at Chelsea in Rand's time; see *Hort. Kew.* Mr. Don rightly determined it to be a *Crepis*, and the Linnæan specimen decides its species. The flowers are small and inconspicuous, of a pale yellow. Each calyx-leaf acquires a strong prominent smooth rib as the seed ripens.

This plant appears in two places in the 1st edition of *Spec. Plant.* but in the 2d the *Lapsana* is made a variety β, which is still incorrect, for it is precisely one and the same in every respect.

My worthy friend Dr. *Afzelius* once told me an amusing anecdote to account for the specific name of this *Crepis*. The Queen of Sweden, Louisa Ulrica, celebrated as the great patroness of Linnæus, used frequently, in her visits to the Upsal garden, to jest with him for his valuing many mean or ill-looking plants, in which she could see nothing to admire. Coming to this little *Crepis*, which is far from ornamental, in one of her walks with the Professor, the Queen exclaimed, "This I suppose *you* call a pretty plant!" Linnæus replied, "The plant has as yet not been called any thing; but Your Majesty has given it a name which shall certainly be adopted." He therefore called it *Crepis pulchra*. The old synonym of Bauhin, *Hieracium pulchrum*, may seem to invalidate this story, but will not be found to do so in reality; as, though it might afford the precise name, the idea might nevertheless be suggested to Linnæus by the Queen.

13. Eri-

13. Erigeron *uniflorum*,

caulibus subunifloris, calyce villoso, radio erecto subtubuloso.

E. uniflorum. *Linn. Sp. Pl.* 1211. *Fl. Lapp. ed.* 2. 250. *t.* 9. *f.* 3.

Grows on Ben Lawers, and on rocks by the side of the river Almond, near Lindoch, seven miles from Perth. Mr. Don remarks that the chief distinction between this and the *alpinum*, *Engl. Bot t.* 464, is, that in *uniflorum* the florets of the radius are more slender, and seem to be tubular, always upright, and never becoming patent as in *alpinum*. They are also of a deeper colour, and the disk is constantly of a dark purple approaching to black, instead of a light yellow. To this we may add, that the calyx is always much more villose, forming, as Linnæus says, a hispid globe before it opens. The radius seems to be often white, and hence he compares it to a daisy. Its erect position remains when dry, and a liberty appears to have been taken by the draughtsman of the *Flora Lapponica*, who certainly saw only a dried specimen, of making it spread almost horizontally.

There can in future be no difficulty in distinguishing these two species. Each of them is liable to bear several flowers on a stem when cultivated. Both grow in Switzerland as well as in Scotland; but we have seen only the *uniflorum* from Lapland, though it appears by *Fl. Danica*, *t.* 292, that the *alpinum* is found on the mountains of Norway and Iceland: and indeed Linnæus in his Lapland Tour describes his plant with a yellow disk, and sketches the radius in a rather spreading posture; so that, though he preserved the *uniflorum* only, he might possibly gather both, and at that time confound them.

Norwich, Nov. 6—30, 1809.

XV. *Descriptions*

XV. *Descriptions of Seven new Species of Apion. By the Rev. William Kirby, F.L.S.*

Read December 5, 1809.

I BEG leave to offer to the Linnean Society a description of some species of *Apion* which I have met with since my paper* upon that genus was printed, together with a few additional remarks upon some of those already described.

62. APION GENISTÆ.

A. nigrum albido-villosum, elytris villoso-cinereis: vittâ rectâ albidâ, pedibus rufis: plantis atris.

Long. Corp. $1\frac{1}{3}$ lin.

Habitat in Angliæ *Genistâ tinctoriâ.* Dom. Scales. *Mus.* Dom. Marsham, Milne, Scales, Spence, Geo. Sowerby, nostr.

DESCR. CORPUS nigrum, pilis decumbentibus albidis incanum.

CAPUT rariùs pilosum. *Rostrum* mediocre, filiforme, deorsum spectans, subarcuatum, nitidum, pone antennas incrassatum. *Antennæ* apud basin rostro subtus insertæ, mediocres nigræ: articulo primo rufo. *Oculi* magni, prominuli.

TRUNCUS subglobosus, anticè angustior, excavato-punc-

* *Trans. Linn. Soc.* vol. ix. p. 1.

tatus:

tatus: punctis distinctis, ante scutellum lineolâ exaratus. *Pedes* rufi: coxis femorum trochanteribus tarsisque nigris. *Coleoptra* oblonga, striata, ex flavescente cinerea, qui color ex pilis decumbentibus exoritur: vittâ intermediâ rectâ latâ villoso-albidâ, quæ tamen ad apicem haud attingit, in utroque elytro notanda; margo itidem lateralis paululùm albescit.

Obs.—*Puncta et lineola thoracica nisi pilis abrasis vix facilè conspicienda.*

This species very much resembles *A. melanopum* (*Linn. Trans.* ix. 19. 2), which it should follow; but the rostrum is thicker, the first joint only of the antennæ is rufous, the trunk is proportionally wider, the thighs are entirely rufous, the very extremity of the base only excepted, the hip-joints are black, and the elytra, instead of a narrow oblique streak, have a broad straight stripe of white, which runs nearly to the end.

63. APION LÆVICOLLE.

A. atrum glabrum, fronte sulcatâ, femoribus testaceis, trunco læviusculo, coleoptris globoso-ovatis gibbis.

Long. Corp. 1½ lin.

Habitat in Angliâ. In Cantio a nobis bis lectum æstate hujus (1809) anni. *Mus.* nostr.

DESCR. CORPUS atrum, nitidum, glabrum.

Caput vix punctatum, inter oculos sulcatum: sulculis circiter tribus. *Rostrum* ferè mediocre, crassiusculum, in medio paululùm incrassatum, obsoletiùs ruguloso-punctatum. *Antennæ* mediocres, paulo pone medium rostro insidentes.

Truncus

TRUNCUS cylindricus, capite vix latior, levissimè punctulatus, ante scutellum fossulâ satis impressâ notatus. *Femora* omnia cum trochanteribus, item *Coxæ* anteriores duæ, flavo-testacea. *Tibiæ* anticæ rufæ basi dilutiores, posteriores quatuor nigro-piceæ basi annulo flavo-testaceo. *Tarsi* nigri. *Coleoptra* subglobosa sive ex globoso ovata, gibba, striata: striis subpunctatis.

This species should be placed after *A. flavifemoratum* (*Linn. Trans.* ix. 42. 23.) to which it is very nearly related: it is however quite distinct, and may always be known by the very slight punctation of its trunk, and the deep fossula just above the scutellum. The rostrum also is thicker than even that of the male of the species just referred to, and the little furrows too between the eyes afford a good character. I think it was taken, but am not quite certain, in the parish of *Wittersham* in the *Isle* of *Oxney* in *Kent*, a spot which abounds with insects, particularly *Hymenoptera*.

64. APION VELOX.

A. atrum, rostro breviori crassiusculo, coleoptris obovatis sulcatis: sulcorum interstitiis angustissimis.

Long. Corp. ¾—1 lin.

Habitat in Angliâ. In *Salice capreâ* a Dom. Sheppard sæpiùs lectum currens velociter. *Mus.* Dom. Sheppard, Geo. Sowerby, Wilkin, nostr.

DESCR. CORPUS atrum, pilositate parvâ albicanti paululùm obscuratum.

CAPUT inter oculos confluenter rugulosum. *Rostrum* brevius, crassum, læve. *Antennæ* sublongiores, pone medium

dium rostro insidentes: clavâ albido-villosâ. *Oculi* admodum magni, subprominuli.

Truncus teretiusculus, medio paulò latior, confluenter punctatus, lineolâ obsoletiori ante scutellum impressus. *Coleoptra* ex globoso obovata, sulcata: sulcis interstitiis ipsis latioribus, concinnè et impressè punctatis.

This species may be placed after *A. ebeninum* (*Linn. Trans.* ix. 55. 34.) to which it is allied. It differs from it not only in size, being very much smaller, but the rostrum also is shorter and thicker, the trunk is of a different shape, rough with confluent points, and exhibiting a very faint trace of an impressed line or point at the scutellum. From *A. brevirostre*, (*Linn. Trans.* ix. 68. 51.) which it also somewhat resembles, it is sufficiently and indeed strikingly distinguished by the unusual width of the furrows of the elytra, and their very narrow ridge-like interstices. Mr. Sheppard informs me that it runs uncommonly fast for an insect of this genus. Mr. George Sowerby has also taken it, who gave me my specimens.

65. APION PUBESCENS.

A. atrum piloso-incanum, thorace brevi granulosè lineolâ impresso, rostro mediocri.

Long. Corp. 1 lin. circiter.

Habitat in Angliâ. Ex *Mus.* Dom. Hall.

DESCR. CORPUS nigrum, nitidiusculum, totum pilis albicantibus incanum.

Caput thorace paulò brevius, inter oculos læviusculum. *Rostrum* filiforme, mediocre, satis arcuatum. *Antennæ* posticæ, mediocres. *Oculi* magni, prominuli.

Truncus

TRUNCUS brevis, teretiusculus, posticè latior, punctulatus, ante scutellum lineolâ exaratus. *Coleoptra* ovata, striata: striis subpunctatis; interstitiis planiusculis.

Obs. *Maris rostrum brevius, crassius, leviter arcuatum.*

This species should follow *A. atomarium*, (*Linn. Trans.* ix. 59. 40.) which it very much resembles: the head however is longer, the rostrum in both sexes shorter, the trunk is more conspicuously punctulate with a very visible dorsal channel, the interstices also of the furrows of the elytra are wider and flatter, and the furrows themselves less conspicuously punctate.

66. APION SIMILE.

A. atrum, coleoptris obovatis æneo-nigris subsericeo-nitidis, rostro *femineo* longiori.

Long. Corp. 1—1¼ lin.

Habitat in Angliâ. Apud Hunstanton in Norfolciâ in maritimis a nobis semel lectum. *Mus.* Dom. Marsham, W. J. Hooker, nostr.

DESCR. CORPUS atrum ex pube quâdam parvâ obscurum.

CAPUT. *Rostrum* longius, filiforme, leviter arcuatum, apice nitidum, in medio subincrassatum. *Antennæ* mediocres, pone medium rostro insidentes. *Oculi* magni, submersi.

TRUNCUS subcylindricus, confluenter punctatus, lineolâ ante scutellum exaratus. *Coleoptra* obovata, nigra, æneo, sed levissimè, tincta, subsericeo-nitida, striata: striis subpunctatis; interstitiis planiusculis.

Obs. *Maris rostrum brevius et quàm feminæ crassius. Elytrorum nitor sericeus ex rugulositate quâdam, sed levissimâ, exoritur.*

 A. simile

A. simile is nearly related to and should follow the preceding species, but it is less hairy; the rostrum is longer, its coleoptra are more obovate, have an æneous tint, and reflect, although faintly, a sericeous lustre. It is also not unlike *A. seniculus*, (*Linn. Trans.* ix. 61. 43.) but it is less hairy, and proportionally wider.

67. APION ANGUSTATUM.

A. atrum subangustum piloso-subincanum, coleoptris oblongis sulcatis, scutello canaliculato.

Apion angustatum. *Mus. Dom. Gyllenhal.*

Apion Meliloti var. *β. Kirby in Linn. Trans.* ix. 64. 46.

Long. Corp. $1\frac{1}{3}$ lin.

Habitat in Sueciâ. *Mus.* Dom. Gyllenhal. nostr.

DESCR. CORPUS atrum, angustum satis, ex pilositate obscurum et leviter incanum.

Caput longum admodum, punctatum, inter oculos rugulosum. *Rostrum* longius, subfiliforme, arcuatum, levissimè punctulatum, ante antennas nitidum. *Antennæ* mediocres, pone medium rostro insidentes. *Oculi* prominuli.

Truncus ex globoso teretiusculus, confluenter punctatus, ante scutellum lineolâ satis impressâ exaratus. *Scutellum*, quod singulare, canaliculatum. *Coleoptra* oblonga, sulcata: sulcis interstitiorum ferè latitudine, impressè punctatis.

In my description of *A. Meliloti*, I intimated a suspicion that var. *β* might prove a distinct species; but as I had then seen only two specimens of the former insect, I did not venture to separate them. Having since taken several, none of which varied from

from α in the slightest degree, I was induced to compare β with it again. The result of this comparison was the conviction that they ought to be given as distinct species; for, exclusive of the difference of size which is considerable for such minute insects, the body of *A. angustatum* is more hairy and obscure; the head between the eyes has no concavity, and is differently sculptured; the trunk and coleoptra, which last are proportionally shorter, are of a shape rather different, the former inclining a little more to a globose form, and the latter being more oblong; the minute scutellum is distinguished by a longitudinal channel, and the furrows of the elytra are wider in proportion.

68. APION SCUTELLARE.

A. atrum subangustum piloso-subincanum, coleoptris obovatis sulcatis, scutello elongato.

Long. Corp. 1¼ lin.

Habitat in Angliâ semel lectum. *Mus.* nostr.

DESCR. CORPUS admodùm angustum, atrum, ex pilositate parvâ subincanum et obscurum.

CAPUT thorace paulo brevius, inter oculos striatulum. *Rostrum* longius, filiforme, arcuatum, ante antennas subattenuatum apice ipso iterum paululum dilatato. *Antennæ* breviores, pone medium rostro insidentes, nitidiusculæ. *Oculi* immersi.

TRUNCUS teretiusculus, anticè paulo angustior, confluenter punctatus, ante scutellum fossulâ exaratus. *Scutellum* quam obtinet plerumque in hoc genere longius. *Coleoptra* ex oblongo obovata, sulcata: sulcis interstitiorum ferè latitudine, punctatis.

I had

I had put by this insect also, as a variety of *A. Meliloti*, but upon further inspection I am convinced it is distinct: it is intermediate between it and *A. angustatum*, which should stand first in the series. From *A. Meliloti*, which it most resembles, it may be distinguished by having a rather longer rostrum, a more hairy body, eyes less prominent, elytra black with wider furrows, a longer scutellum, and no concavity between the eyes. From *A. angustatum*, with which it agrees in its plane front, hairy body, and sulcate elytra, it differs in those other characters which distinguish *A. Meliloti* from that species.

Additional Observations.

My learned and very ingenious friend, and coadjutor in an intended *Introduction to Entomology*, William Spence, Esq. F.L.S. whose eye nothing escapes, in a letter lately received, directed my attention to the *trochanters* (for by this name, in the work above alluded to, we have agreed to distinguish what I formerly called the second or femoral joint of the *apophysis*) in *Apion* as differently circumstanced from those of other *Coleopterous* genera; and upon examination I find that they are so fixed to the base of the thighs as to intercept them from coming at all in contact with the coxæ (or my first joint of the *apophysis*); which circumstance, although it invariably takes place in *Hymenopterous* insects, is observable in no *Coleoptera* that I have had an opportunity to examine, not even in the cognate tribes of *Curculionidæ*, or insects that have their antennæ seated on a rostrum. The general law in this order is for the exterior and longer angle of the base of the thigh at least, to touch the *coxa*, if it does not inosculate

osculate with it; and, to permit this, the *trochanter* is set on very obliquely, and so that this angle goes beyond it: whereas in *Apion* the apex of the *trochanter* forms nearly a transverse or very slightly oblique line with the base of the thigh, and intercepts it in its whole width. This peculiarity strongly substantiates its claim to be considered as a distinct genus.

When I constructed the *Character Naturalis* of *Apion*, I was not aware that the term *Epigastrium* had been employed by Linné upon one occasion, and probably in the very sense in which I used it. See Syst. Nat. ed. 12. 647. 4. under *Cantharis rufa.*

I shall now add a few remarks upon some of the species formerly described.

Apion Malvæ (Linn. Trans. ix. 20. 3.) Obs. 1. *Coxæ* omnes nigræ, sed *trochanteres* testacei sunt, quod etiam obtinet in *A. vernali* (21. 4.)

Obs. 2. *Maris* rostrum paulò brevius et crassius est, et ferè totum albido pilosum.

Apion Craccæ (29. 12.) Var. β Antennis totis nigris. *Dom. Spence.*

Apion Viciæ (31. 14.) *Coxæ* nigræ. *Femora* antica trochanteribus rufis. *Dom. Spence.*

Apion Malvarum (33. 16.) *Coxæ* nigræ. *Femora* omnia trochanteribus rufis, sed posticis obscurè.

Apion rufirostre (35. 17.) *Coxæ* omnes cum femorum trochanteribus flavæ. *Dom. Spence.*

Mr. Leach informs me that he has occasionally taken this species in coitu with *A. Malvarum.*

Apion nigritarse (36. 18.) *Femina. Coxæ* 4 anteriores cum trochanteribus omnibus flavæ. *Mas. Coxæ* 2 anteriores cum trochanteribus omnibus rufæ.

Apion

Apion flavipes (37. 19.) *Coxæ* 2 anteriores nunc nigræ nunc flavæ, reliquis nigris, femorum trochanteribus flavis. *Dom. Spence.*

Apion pallipes (38. 20.) *Coxæ* omnes, item trochanteres, flavæ.

Apion assimile et flavifemoratum (42. 22, 23.) *Coxæ* duæ anteriores, cum trochanteribus omnibus, rufæ. *Dom. Spence.*

Apion Sorbi (46. 25.) In quibusdam speciminibus *Caput* inter oculos bistriatum. *Dom. Spence.*

Apion punctifrons (50. 28.) *Femina* rostro longiori tenuiori.

I took several specimens of this *Apion* in the sandpits under *Charlton-Wood* near *Woolwich* in the autumn of the present year, 1809.

Apion marchicum (54. 33.) Var. *β* Elytris viridescente-cæruleis: striâ suturali in medio vix reliquis profundiori.

Obs. *Mas* rostro breviori sed vix crassiori.

Apion Astragali (55. 35.) Var. *β* taken by Mr. Atkinson of Leeds in Yorkshire, in June and July 1809, on the only plant of *Astragalus glyciphyllus* he ever met with in that county.

Apion Spencii (57. 37.) Ex pluribus speciminibus inter se collatis *Nomen Specificum* sic emendandum.

A. atrum piloso-obscurum, fronte striatâ, thorace canaliculato utrinque foveato, coleoptris atro-cæruleis viridescentibusve. K.

Obs. *Femina* rostro longiori tenuiori. *Dom. Spence.*

Apion unicolor (58. 39.) *Nomen specificum* sic emendandum, cum specimina plura puncta gemina elevata rostri exhibeant.

A. atrum subpilosum, coleoptris oblongis, rostro puncto gemino elevato. K.

Obs. *Femina* rostro longiori tenuiori. *Dom. Spence.*

Apion Seniculus (61. 43.) *Oculi* majores quàm in *A. tenui.*

Apion Meliloti (64. 46.) *Caput* inter oculos potiùs striatum. *Mas* rostro paulò breviori sed vix quàm feminæ crassiori. I took

several

several this autumn (1809) in the sand-pits under *Charlton-Wood*, near *Woolwich*.

Apion violaceum (65. 47.) Var. β. Elytris viridescentibus. Var. γ. Fronte vix canaliculatâ, capite thoraceque, sed levissimè, æneo tinctis, elytris viridescente-cæruleo nitidulis. An idem? Ex *Mus*. Dom. Hall.

Apion Onopordi (71. 54.) *Habitat* etiam in *Rumice* et *Carduis*. *Dom. Spence*. A me nunquam nisi in *Onopordo* lectum. K.

Apion Radiolus et oxurum (73. 56, 57.) From a further examination of Mr. Marsham's specimen of *A. Radiolus* I am convinced that *A. oxurum* is merely a variety of it, differing in nothing but the black colour of its elytra, and the hairs which are scattered over it. In old specimens the hairs are often rubbed off. I therefore would expunge *A. oxurum*.

 XVI. *Account*

XVI. *Account of Ormosia, a new Genus of Decandrous Plants belonging to the Natural Order of Leguminosæ. By Mr. George Jackson, F.L.S.*

Read February 6, 1810.

Amongst a fine collection of Guiana plants in the herbarium of A. B. Lambert, Esq. there are several specimens of a plant with velvety branches, rigid pinnate leaves, and papilionaceous flowers; the calyx bilabiate with the limb reflected, its upper lip supporting the vexillum, being two-lobed, and the lower lip three-parted: the stamens ten, separate, dilated towards the base, and alternately longer: the style incurved and ciliate, bearing two truncated unequal stigmas, the uppermost of which is largest, and incurved towards the other. The germen is ovate and pubescent, containing five seeds; the fruit a short oblique woody pod, opening with two valves, and containing in general only one perfect seed, but is also occasionally found with two: these are large, nearly oval, of a fine scarlet colour with a large black spot on one side. From these singular characters, noticed some time ago by Mr. Lambert, I was induced to examine some surrounding genera of the order, to endeavour to discover its congeners, affinities, and proper place in the series; and a plant with similar scarlet and black seeds being enumerated in the *Flora Guianensis* of Aublet, as a species of *Robinia*, but without any further description, a reference to the *Pseudo-acacia ingens, fructu coccineo, nigrâ*

nigrâ maculâ notato, of Plumier's Catalogue, and unpublished MSS. tom. 7, tab. 145 excepted; my first care was to endeavour to find out whether it might not be the same. That it was not the plant of Plumier I was well aware, a copy of his drawing of that, with many others of his unpublished drawings, being in the Sherardian collection at Oxford, and from which I had taken copies myself for Mr. Lambert. I was, however, still uncertain about the plant of Aublet, very erroneous and even heterogeneous synonymy being often adopted by the botanists of that age with very little scruple. Fortunately, however, his herbarium was at hand, being now in the possession of the Right Honourable Sir Joseph Banks; and on being favoured by Mr. Dryander with a sight of Aublet's original specimen, I found that Mr. Lambert's plant was the identical *Robinia coccinea.* Characters exactly similar I have since discovered in another nondescript plant from Guiana, communicated to Mr. Lambert by Mr. Anderson of St. Vincents; and also in the *Sophora monosperma* of Professor Swartz's *Prodromus* and *Flora Indiæ Occidentalis*, of which the *Pseudo-acacia ingens fructu coccineo, &c.* of Plumier's drawings, above mentioned, is a very good representation; a plant essentially differing both from the original *Sophora* of Linnæus and the *Virgilia* and *Podalyria* of Lamarck, to the latter of which it has lately been referred by Mons. Poiret, as well as the *Edwardsia* of Mr. Salisbury, a very curious species of which, from South America, communicated by the late Professor Cavanilles, is also in Mr. Lambert's collection. From these three species, therefore, agreeing in habits and characters, and natives of nearly the same latitude, I have constituted a new genus, the characters of which, accompanied with sketches from the dried plants, I have now the honour to lay before the Society. The name *Ormosia*, by which I have distinguished it, is formed from the Greek Ορμος, *monile*, a

 necklace;

lace; their beautiful seeds, and particularly those of *O. dasycarpa*, commonly called in the West Indies *the bead-tree*, being worn as necklaces by the ladies.

The natural place of the genus appears to be in the vicinity of *Virgilia* and *Podalyria*; but the affinities are far from strong, and leave abundant room for intermediates on all sides; and from the unexplored tropical parts of America, many conterminal plants of the order are probably yet to be expected.

ORMOSIA.

Decandria Monogynia, Linn.

Leguminosæ, Juss.

Character Genericus. Calyx bilabiatus, labio superiore bilobo, inferiore tripartito. Corolla papilionacea. Vexillum subrotundum, emarginatum, alis vix longius. Carina longitudine alarum, dipetala. Filamenta libera, basin versus dilatata. Stylus incurvus. Stigmata duo, unum supra alterum. Germen subovatum, 5-6-spermum. Legumen lignosum, compressum, bivalve, 1—3-spermum.

Habitus. Arbores. Rami ferrugineo-villosi. Folia stipulata, impari-pinnata. Stipulæ à petiolis distinctæ. Foliola nervosa, integerrima, 4—6-juga. Flores terminales, paniculati, cærulei vel purpurascentes. Legumina lata, lignosa. Semina pauca, colorata, magna.

1. Ormosia *coccinea*.

Tab. XXV.

O. foliis impari-pinnatis, foliolis crassis subovatis, marginibus revolutis, utrinque nudis, 4—6-jugis; leguminibus glabris, nitidis.

Robinia

Ormosia coccinea.

Robinia coccinea. *Aub. Flor. Guian.* 2. *p.* 773, sine synonymo Plumieri.

Habitat in Guianâ.

Arbor. Rami flexuosi è casu foliorum cicatricibus notati. Stipulæ angustæ, sericeæ, à petiolis distinctæ. Folia magna sæpè pedalia. Foliola rigida, nervosa et venulosa; suprà nitidissima, subtùs subfusca. Nervi subtùs exstantes, suprà depressi. Venulæ numerosæ, inter nervos obliquæ, iisque pari ratione subtùs elatæ, flexuosæ. Petioli *universales* villosi, suprà leviter sulcati; *partiales* crassi, interdum ferè glabri. Paniculæ bracteatæ, pedales vel etiam ultrà. Bracteæ subulatæ. Pedunculi, pedicelli et calyces villosi. Calyx basi turbinatus, limbo reflexus. Labium superius inferiore longius, bilobum. Petala omnia unguiculata. Vexillum utrinque emarginatum. Alæ obovato-falcatæ. Carina dipetala, petalis subfalcatis. Filamenta calyci inserta, quinque breviora. Antheræ subovatæ, utrinque emarginatæ, biloculares. Stylus incurvus, ciliatus. Stigmata truncata, inæqualia; superius majus, versus inferius incurvum. Germen striatum, villosum, 5-spermum. Legumen breve, durissimum et nitidissimum, brevissimè rostratum, basin versus obliquè attenuatum, 1- vel rariùs 2- spermum. Semina subovata, nitida, coccinea cum maculâ nigrâ. Integumentum seminis duplex, exterius coriaceum, interius membranaceum, albidum. Albumen nullum. Embryo semini conformis. Cotyledones plano-convexæ. Radicula centrifuga, exserta, subhemisphærica. Plumula nulla.

EXPLICATIO TABULÆ.

Fig. 1. Ramuli floriferi pars.
2. Flos sejunctus.
3. Vexillum.

3. Vexillum.
4. Alæ.
5. Carina.
6. Calyx, Stamina et Pistillum.
7. Calyx vi expansus cum Staminibus.
8. Pistillum. 8. b. Germinis sectio.
9. Fructus monospermus.
10. Idem intus visus, valvâ superiori amotâ.
11. Fructus dispermus vi expansus.
12. Embryo.

2. Ormosia *dasycarpa.*

Tab. XXVI.

O. foliis impari-pinnatis, foliolis 4-5-jugis, utrinque nudis, leguminibus ferrugineo-tomentosis.

Pseudo-acacia ingens, fructu coccineo, nigrâ maculâ notato. *Plum. Cat. p.* 19, *et MSS. cum Icone.*

Glycine arboreum, foliis oblongis, seminibus majoribus. *Browne Jam. p.* 298.

Sophora monosperma. *Swartz Prod. et Flor. Ind. Occ.* 2. *p.* 722. *Willd. Sp. Pl.* 2. *p.* 501.

Podalyria monosperma. *Poiret in Encyc. Method.* 5. *p.* 440.

Habitat in Indiâ Occidentali.

Explicatio Tabulæ.

Fig. 1. Rami fructiferi pars.
2. Calyx cum Pistillo.
3. Idem, pistillo exempto.
4. Germinis sectio.

5. Legumen

Ormosia dasycarpa.

Ormosia coarctata.

5. Legumen trispermum vi expansum.
6. Semen.
7. Embryo.

3. ORMOSIA *coarctata*.

TAB. XXVII.

O. foliis impari-pinnatis, foliolis inæqualibus 4-5-jugis, suprà nudis, subtùs ferrugineo-hirsutis.

Habitat in Guianâ. *Anderson.*

Arbor. Rami è vestigiis petiolorum cicatricosi, subteretes. Stipulæ à petiolis distinctæ, subulatæ, sericeæ. Folia *O. dasycarpæ* minora. Foliola ovato-lanceolata, nervosa, suprà fusco-viridia, subtùs ferrugineo-hirsuta, duo infima multo minora, magisque ovata. Nervi suprà depressi, subtùs elati ac venulis pari ratione extantibus intertexti. Petioli tomentosi, teretes, *partiales* brevissimi. Paniculæ coarctatæ, breves. Bracteæ pubescentes, ad divisuras paniculæ lato-subulatæ, ad pedicellos triangulo-ovatæ, concavæ. Pedicelli bracteis breviores, teretes, villosi. Calyx extùs villosus, intùs coloratus, glaber, labium superius inferiore longius. Filamenta alternè breviora. Antheræ utrinque emarginatæ, biloculares. Germen hirsutum, 5-spermum. Fructum maturum non vidi.

Semina facie O. dasycarpæ sed minora. D. Thompson.

EXPLICATIO TABULÆ.

Fig. 1. Ramuli floriferi pars.
2. Flos sejunctus.
3. Vexillum.

4. Alæ.

4. Alæ.
5. Carina.
6. Pars inferior Calycis cum Staminibus et Pistillo.
7. Calyx vi expansus cum Staminibus.
8. Pistillum.
9. Germen longitudinaliter sectum.

XVII. *An*

XVII. *An Account of a new Genus of New Holland Plants named Brunonia. By James Edward Smith, M.D. F.R.S. P.L.S.*

Read February 6, 1810.

For the knowledge of the genus of plants of which I now propose to offer an account to the Linnean Society, I am obliged to Mr. Robert Brown, Librarian to the Society, who discovered it in the course of his botanical researches in New Holland. A very interesting part of his rich harvest in that country occupies a large portion of the present volume of our Transactions. With such a proof of his genius and abilities before us, any testimony of mine to the same purpose would be altogether superfluous; but I am anxious to seize an opportunity, which, at my earnest solicitation, Mr. Brown has afforded me, of gratifying my own personal friendship, while I do public justice to his merits, in dedicating this new and very distinct genus to his honour. In order to accomplish this, as there is already a *Brownea*, in memory of the natural historian of Jamaica, I am obliged to adopt a contrivance, unexceptionable in itself, and authorized by precedent, of preserving as much resemblance to his name as possible, while I avoid all ambiguity with the *Brownea* previously established, in calling my genus *Brunonia*. Of this, consisting of two species, I shall now proceed to offer a systematic description, subjoining some remarks on its botanical affinity, which is enveloped in no small degree of obscurity.

BRUNONIA.

Class. et Ord. *Pentandria Monogynia.*

Sect. 1. *Flores monopetali, inferi, monospermi.*

Nat. Ord. *Aggregatæ* Linn. *Dipsaceæ* Juss. ?

Essent. Char. *Corolla* infundibuliformis, quinquefida, irregularis. *Antheræ* connatæ. *Stigma* indusio bivalvi. *Semen* unicum, calyce interiori, demum plumoso, tectum.

Nat. Char. *Calyx.—Perianthium commune* multiflorum, polyphyllum: *foliolis* flore brevioribus, subæqualibus, patentibus, persistentibus; interioribus minoribus, solitariis, sub singulo flore.

Perianthium proprium duplex, utrumque inferum:

exterius tetraphyllum, brevius, foliolis membranaceis, subæqualibus, erectis, concavis, obtusis:

interius turbinatum, parùm longius, quinquedentatum, persistens, dentibus plumosis.

Corolla *universalis* æqualis.

Propria monopetala, infundibuliformis, calyce longior; limbo quinquepartito, patente, laciniis subæqualibus, duabus superioribus profundiùs divisis; tubo quinquepartibili.

Stamina. *Filamenta* quinque, receptaculo inserta, capillaria, debilia. *Antheræ* lineares, in cylindrum connatæ, longitudine tubi.

Pistillum. *Germen* superum, subrotundum. *Stylus* clavatus, staminibus duplò ferè longior. *Stigma* incrassatum, torulosum, obtusum, valvulis duabus æqualibus, verticalibus, orbiculatis, concavis, membranaceis, conniventibus, inclusum.

Pericarpium nullum, nisi perianthium interius, cum corollæ basi membranaceâ, persistens, auctum atque induratum, dentibus

dentibus quinque plumosis, elongatis, patentibus, pappum mentientibus, coronatum.

SEMEN solitarium, tectum, ovatum, exalbuminosum. *Embryo*, ex inventoris auctoritate, erectus.

1. BRUNONIA *australis.*

TAB. XXVIII.

B. foliis pilosis: pilis patentibus, laciniis calycinis undique plumosis.

In campis arenosis maritimis Australasiæ.

Abundant in Van Diemen's Land, and observed also on the opposite shore of New Holland at Port Phillip, flowering in January 1804. *Mr. Brown.*

Herba acaulis, undique pilosa, annua?

Radix simplex, fusiformis, gracilis.

Folia radicalia, numerosa, bi- vel tri-uncialia, erectiuscula, spatulata, obtusiuscula, integerrima, uninervia, parùm venosa, pallidè viridia; basi attenuata; undique pilosa; pilis patentibus, rigidulis, apice confertis, mucronulum simulantibus.

Scapus solitarius, pedalis vel altior, simplicissimus, nudus, teres, pilis supernè minùs patentibus; intùs spongiosus.

Capitulum terminale, solitarium, magnitudine Scabiosæ succisæ, undique sericeo-pilosum.

Flores cærulei, ferè Jasionis montanæ.

2. BRUNONIA *sericea.*

TAB. XXIX.

B. foliis sericeis: pilis adpressis, laciniis calycinis apice denudatis coloratis.

 In

In arenosis maritimis Novæ Hollandiæ.

At Pine Port, just within the tropic, on the east coast of New Holland, flowering in August 1802. *Mr. Brown.*

Forma omninò præcedentis, at *folia* numerosiora, angustiora, undique sericea, pilis arctè adpressis. *Capitulum* priori simillimum, sed apices calycis interioris denudati, subexserti, colorati, obtusiusculi.

The genus under consideration is, as Mr. Brown remarks, exceedingly interesting, on account of its apparent relationship to several very different natural orders, and the great difficulty of referring it to any one in particular. Its discoverer is inclined to place it between the *Campanulaceæ* and *Corymbiferæ* of Jussieu, though it overturns the artificial characters of both orders, having a superior germen. But it accords with the latter in the very important circumstance of the upright embryo, and precisely in the number, form, texture, and connexion of its *stamina* and *antheræ*, which are altogether those of a true syngenesious flower. Its *stigma* on the other hand bears an exact resemblance to some of the *Campanulaceæ*, as *Goodenia*, *Scævola*, *Velleia*, &c. and is unlike every thing else in nature. For this reason, and for the sake of its *germen superum*, which is the case with some of these, as *Velleia*, Mr. Brown was disposed to place it at the end of this order, bordering upon *Syngenesiæ*.

On considering the above remarks, assisted by dried specimens, I have presumed to suggest that *Brunonia* may perhaps belong to *Dipsaceæ*, and Mr. Brown in reply informs me that this idea had not entirely escaped him. I was led to it by the general aspect of the plants, and by a suspicion of Jussieu *, that the

* See Adanson and Gærtner on this subject.

exterior

exterior perianthium in *Dipsaceæ* may perhaps most properly be deemed inferior, only embracing the seed closely, being enlarged and hardened in the fruit; witness *Scabiosa.* Now this is precisely the case with what I have above described as the *inner* perianthium of *Brunonia*, the outer one, of four leaves, not being analogous to any thing in *Scabiosa*, except the solitary scales or leaves in many species accompanying each flower. Can it be possible, therefore, that what I have taken for the *inner* is really the *only* perianthium in *Brunonia*, and exactly analogous to the outer one in *Scabiosa?* They both alike, in an indurated state, envelop and crown the ripe seed.

If habit were to be much insisted on, nothing can be stronger in my favour; for, besides the inflorescence, when I lay the dried specimens of the two *Brunoniæ* by the side of *Scabiosa cretica* and *graminifolia*, nothing can be more striking than the exact agreement of the foliage of *B. australis* with the former, both in shape and colour; while the same circumstances, including the silky pubescence, no less agree in *B. sericea* and *S. graminifolia.* I am, however, aware how treacherous these analogies are in the productions, whether vegetable or animal, of New Holland, but their technical characters are no less so. If it would lead us widely astray to make the wonderful *Ornithorinchus* a bird, on account of its beak, it would be equally dangerous, were any botanist to refer *Brunonia* to the *Campanulaceæ*, for the sake of its stigma alone. "Upon the whole," as Mr. Brown very candidly remarks, "instead of our being able to determine the order to which this genus belongs, *Brunonia* seems to afford no small proof of the limits of these groups being purely artificial; for does it not break down the barrier between *Syngenesiæ* and *Campanulaceæ*, *Dipsaceæ* and *Globulariæ?*" To this I most heartily subscribe; but if it leads to the overthrow of artificial definitions,

too

too confidently perhaps asserted for natural, may it not on the other hand guide us to some natural combinations, in helping us, for instance, to understand *Corymbium?* These anomalous productions, while they perplex the system-builder, enlighten the true observer. Who knows but the difference between an upright and a reversed embryo, which, according to our present knowledge, I allow to be almost insuperable, and by which rule *Brunonia* must be referred to the *Corymbiferæ*, and not to the *Dipsaceæ*, may prove, like every other known character, liable too ccasional exception?

J. E. SMITH.

EXPLANATION OF THE PLATES.

TAB. XXVIII. BRUNONIA *australis.*

Fig. 1. Planta magnitudine naturali. 2. Flos completus magn. auctus. 3. Calyx exterior cum bracteâ respondente capituli. 4. Corolla cum dimidio calycis interioris. 5. Pistillum et Stamina, quorum tubus antherarum apertus. 6. Stigma dimidio indusii abscisso. Apex styli cum indusio stigmatis.

TAB. XXIX. BRUNONIA *sericea.*

Fig. 1. Planta magnitudine naturali. 2. Capituli lobus magn. auctus. 3. Flos completus. 4. Calyx exterior cum bracteâ respondente capituli. 5. Stamina et Pistillum, cujus Stigma longitudine indusii. 6. Stamen unicum. 7. Pistillum, cujus stigma semiexsertum. 8. Apex Styli cum indusio stigmate adhuc incluso. 9. Stigma denudatum. 10. Calyx interior fructifer. 11. Tubus ejusdem apertus, ostendens semen filamentis infrà cohærentibus cinctum. 12. Semen filamentis persistentibus cinctum. 13. Apex incrassatus operculiformis tunicæ exterioris seminis. 14. Semen tunica exteriore orbatum. 15. Embryo.

XVIII. *A De-*

Brunonia australis.

Brunonia sericea.

XVIII. *A Description of Duchesnea fragiformis, constituting a new Genus of the Natural Order of Senticosæ of Linnæus, Rosaceæ of Jussieu.* *By James Edward Smith, M.D. F.R.S. P.L.S.*

Read April 3, 1810.

Having lately had occasion to study the genus *Fragaria*, I was led to consider the plant figured and described by Mr. Andrews in his *Repository*, *t.* 479, by the name of *F. indica*, which struck me as, in many respects, very remarkable, and probably constituting a new genus. That it is no *Fragaria* is apparent from the fruit, which is represented like that of a *Rubus*. In short, the plant in question, with the habit of a *Fragaria*, has the yellow flower and ten-cleft calyx of a *Potentilla*, and the fruit of a *Rubus*, differing essentially however from the latter in its calyx, as well as in its habit altogether. I am enabled to bear testimony to the accuracy of Mr. Andrews's representation, by means of a specimen gathered by Dr. Buchanan in Nepal, now in my possession, accompanied with a description drawn up by that excellent botanist on the spot.

In the name of this new genus I wish to commemorate the merits of M. Duchesne, author of the *Histoire Naturelle des Fraisiers* published at Paris in 1766, justly termed by Haller "an excellent little book," in which the varieties of Strawberries are so accurately described, and their synonyms so well illustrated, that I cannot but wonder it did not more excite the attention of

Linnæus,

Linnæus, who was furnished by its author with specimens of every thing he described. The subject is followed up by the same writer in an essay communicated to Lamarck, and published in his *Dictionnaire de Botanique*, vol. ii. 528, in which perhaps he may be thought to multiply distinctions without necessity, like all who study any subject with a miçroscopic eye. But if the philosophical principles of strict specific differences have not particularly engaged his attention, that defect is supplied by Ehrhart in his *Beiträge*, fasc. 7. 20, who in the direction of the pubescence of these plants has found means to discriminate the species in a masterly manner. Willdenow in his *Species Plantarum* has profited by these remarks, though he still retains an error of Linnæus in making a distinct species of the *Fragaria monophylla*, Curt. Mag. t. 63, clearly shown by Duchesne to be a variety raised by himself from seed of the Wood Strawberry, *F. vesca*, and found to return gradually to its original in a few generations, when propagated by the same mode.

The plant I am about to describe seems peculiarly fit for the purpose in view, on account of its resemblance and affinity to *Fragaria*, though surely no genus can be more distinct. It affords a new example of what I have often had occasion to remark, that the genera of the Linnæan *Icosandria Polygynia*, which is itself a natural order, are not less distinct in nature than in technical characters.

DUCHESNEA.

Class. et Ord. *Icosandria Polygynia.*

Nat. Ord. *Senticosæ* Linn. *Rosaceæ* Juss.

Essent. Char. *Calyx* decemfidus. *Petala* quinque. *Bacca* supera, composita acinis monospermis.

Nat.

NAT. CHAR.

CALYX. *Perianthium* inferum, monophyllum, planum, decemfidum; laciniis quinque alternis exterioribus majoribus, incisis.

COROLLA. *Petala* 5, obovata, longitudine calycis, laciniisque ejus majoribus opposita.

STAMINA. *Filamenta* viginti circitèr, subulata, petalis triplò breviora, calyci inserta. *Antheræ* subrotundæ, bilobæ, incumbentes.

PISTILLUM. *Germina* plurima, parva, in capitulum collecta, ovata, compressa, incurva. *Styli* simplices, lateri germinis inserti, decidui. *Stigmata* simplicia.

PERICARPIUM. *Bacca* composita: *acinis* ovatis, compressis, in capitulum convexum, *receptaculo* carnoso insidens, collectis: singulis unilocularibus.

SEMINA solitaria, reniformia, lævia.

1. DUCHESNEA *fragiformis.*

Fragaria indica. *Andr. Repos. t.* 479.

In alpibus Indiæ orientalis.

Native of the sandy shores of rivers in Nepal, flowering in March and April. Dr. *Buchanan.*

Radix ramosa, subtuberculata, fibrosa, perennis.

Caules plures, procumbentes, repentes, latè diffusi, filiformes, subsimplices, pilosi, foliosi, pauciflori.

Folia radicalia plurima; caulina ad genicula solitaria, longiùs petiolata, ternata; foliolis petiolatis, subæqualibus, rotundato-rhombeis, obtusis, inæqualitèr incisis, subtùs pilosis: lateralibus subindè bilobis.

 Petioli

Petioli densè pilosi, pilis patentibus.

Stipulæ geminæ, basi petioli adnatæ, ovatæ, incisæ, persistentes, pilosæ.

Pedunculi oppositifolii, solitarii, debiles, longitudine foliorum, uniflori, ebracteati.

Flores ferè *Potentillæ reptantis*, flavi, calyce piloso.

Fructus saturatè ruber, insipidus et inodorus.

XIX. *Ob-*

XIX. *Observations on some Species of Menziesia, hitherto considered as belonging to the Genus Andromeda, by Ol. Swartz, M.D. Bergian Professor of Botany at Stockholm, F.M.L.S.*

Read April 17, 1810.

THE great natural affinity between the genera of *Erica*, *Andromeda*, and *Menziesia* is well known; but at the same time it appears unquestionable that they can never unite with each other. The character of the *Menziesia* was first explained by the President of the Linnean Society, in his excellent work the *Plantæ hactenus ineditæ, t.* 56, where he points out the principal generic difference from the real Andromedas and Ericas to be, a capsule similar to that of *Rhododendron*, or the *dissepimenta loculorum e marginibus valvularum inflexis*, which accordingly places this genus in a natural order distinct from the *Ericeæ*. The author of the *Gen. Plant. secundum Ord. Nat. disposita*, attending to the character of *Menziesia*, indicated afterwards (*Annales du Mus. d'Hist. Nat.* i. p. 52.) the necessity of transferring another plant to the same genus, viz. the *Erica* or *Andromeda Daboecii* of different authors, who, from principles not before fixed concerning the natural affinity, had appeared irresolute about its real place, now sufficiently ascertained by Mr. Salisbury (Transact. of Linn. Soc. vi. p. 323.) and from my own inspection of Irish and Spanish specimens.

From

From equally urgent reasons I take the liberty to indicate a similarity of character in two other plants, and to propose their union with the genus *Menziesia* as real species. These are the *Andromeda cærulea* of Linnæus, and the *Andromeda Bryantha* of Pallas. As for the first-mentioned, the discovery of its particular fruit is by no means new, as the celebrated author of the *Flora Britannica* in his new edition of the Linnean *Flora Lapponica* has already observed the carpological difference of this plant from the other species of *Andromeda*; and at that time thought proper to refer the same to *Erica*, where also Professor Willdenow in his *Spec. Plant.* has enlisted it, as well as the *Andromeda Bryantha*. It is, however, now my intention to prove the propriety of an alteration in this arrangement.

That the capsule of *Andromeda cærulea* by its *valvæ introflexæ loculum proprium constituentes* (Juss.) shows its relationship to the *Rhododendra*, cannot escape an intelligent observer. This circumstance added to a comparison with the *partes fructificantes* of *Menziesia* puts, I think, its near affinity with that genus out of doubt. The calyx of the former is, it is true, *repandus* but *monophyllus*; in the latter also consisting of one leaf, though deeply divided into 5 laciniæ. The form of the *corolla*, its deciduous nature, the *insertio staminum*, the *antheræ*, the *stigma lobatum*, all correspond. The number only differs; which however cannot be of any particular weight, since we find that the *Andromeda Bryantha*, in so many respects resembling the former, even in number approaches the *Menziesia*, as being *octandrous*.

Upon the whole, there is nothing but the habit which at first sight shows any difference. But considering the very great dissimilarity really existing between the species of *Andromeda*, for instance between *A. hypnoides* and *A. mariana*, or *A. tetragona* and

buxifolia,

buxifolia, &c. that difficulty is certainly soon removed. It is also interesting to observe, how nature has varied the appearances in both these genera, as well as in many others.

From such reasons I hope to determine with sufficient propriety the *Andromeda cærulea* to be

MENZIESIA *cærulea*;

foliis sparsis confertis linearibus obtusis cartilagineo-denticulatis, pedunculis terminalibus aggregatis unifloris, floribus decandris.

TAB. XXX. *Fig.* A.

Andromeda cærulea. *Linn. Fl. Lapp. ed. Smith, p.* 133. *t.* 1. *f.* 5. *Flor. Svec.* 354.

Andromeda taxifolia. *Pallas Fl. Ross. t.* 72. *fig.* 2. *Flor. p.* 103.

Erica cærulea. *Willd. Sp. Pl.* ii. *p.* 393.

Obs. Folia sparsa, conferta (imprimis versus apices ramorum) nec propriè terna dicenda, *Willd.*) planiuscula, utrinque sulco exarata, subtùs latiore albido villoso, margine minutè denticulata, denticulis cartilagineis diaphanis. *Pedunculi* intensè rubri, elongati, pube glandulifera undique hispiduli. *Calyx* extùs glanduloso-pubescens. *Flores* nutantes. *Antheræ* leviter apice bifidæ, loculis foramine terminali obliquè hiantes. *Stigma* 5-lobum. *Capsulæ* erectæ, hirsutie glandulifera vestitæ, vetustiores muriculatæ. *Receptaculum* seminum 5-gonum 5-sulcatum, angulis rugulosis. *Semina* oblonga, undato-venulosa, spadicea.

The other, or *Andromeda Bryantha*, I call

MENZIESIA *Bryantha*;

foliis sparsis confertis oblongo-linearibus, pedunculis apice corymbosis, floribus octandris.

TAB.

TAB. XXX. *Fig.* B.

Andromeda Bryantha. *Pallas Fl. Ross. t.* 74. *f.* 2. *Fl. p.* 111.

Bryanthus repens, serpilli folio, flore roseo. *Gmel. Fl. Sib.* 4. 133. *t.* 57. *f.* 3.

Erica Bryantha. *Willd. Sp. Pl.* ii. *p.* 386.

Obs. Fruticulus ramosissimus prostratus, ramulis implexis assurgentibus. *Folia* sparsa, sæpe conferta, a situ subinde secunda, oblongo-linearia, obtusiuscula, suprà planiuscula, subtùs valdè convexa, sulco profundo notata (nec suprà ut *Pall.*) margine (oculo armato) ciliato-denticulata, ciliis cartilagineis. *Pedunculi* solitarii, elongati, pubescentes, bracteâ l. foliolo uno alterove ciliato, glanduloso, instructi; apice corymbosi, pedicellis unifloris. *Calyx* 4-partitus, pubescens. *Capsula* ovato-subrotunda, glabra, scabriuscula. *Semina* ovata *.

Notwithstanding the dissimilarity in habit from the original *Menziesia ferruginea*, we find in some instances a similar tendency in both these species, *e. g.* the elongated flowerstalks, the nodding flowers, (though the fruitstalks and capsules become erect,) the ciliated and glandular appearances on the leaves and the parts belonging to the flower.

How far the *Andromeda Stelleriana Pall. Fl. Ross. t.* 74. *f.* 2., which appears somewhat like the *Bryantha*, and is by Willdenow also referred to *Erica*, may be another species of *Menziesia*, I cannot at present decide, having only seen the plant figured. I have, however, some doubts, as Pallas describes the *antheræ* as *bisetæ*, and Steller observed, that "neque calyx neque flos decedunt, sed ambo marcescunt." It may perhaps rather be a true species of *Erica*.

* More circumstantial descriptions occur in the writings of Linnæus and Pallas, where, however, the most of these particulars are omitted.

EXPLA-

...artz. del.t

EXPLANATION OF TAB. XXX.

Fig. A. 1. A small shrub of the *Menziesia cærulea*, with fruit-stalks and capsules, natural size. 2. A *leaf*, showing the upper side. 3. The under side. 4. The pistillum remaining on the calyx after the falling of the corolla. 5. An anthera. 6. A fruit-stalk, and the capsule closed. 7. The same with open valves. 8. A valve separate. 9. The axis of the capsule, with a seed on the side, or receptaculum seminum. 10. One seed. All more or less magnified.

Fig. B. 1. A part of the shrub of *Menziesia Bryantha* in fruit, natural size. 2. A pedicellus with its capsule. 3. Upper side of a leaf. 4. The under side. 5. A capsule. 6. The same with open valves. 7. The axis. 8. A valve. 9. The seed. All more or less magnified.

ADDITIONAL NOTE

BY THE PRESIDENT.

Dr. Swartz's conjecture, respecting the *Andromeda Stelleriana*, proves at once his acuteness, and the solidity of the principles which guide him. I have specimens of that plant, found by Mr. Menzies on the west coast of North America, and its capsules are those of an *Andromeda*, having the partitions from the middle of

of the valves. I beg leave here to add to the above *Menziesiæ* a new species, gathered in the country just mentioned, by the same excellent botanist whose name it bears.

MENZIESIA *empetriformis*;

foliis linearibus serrulatis: subtùs concavis, pedunculis terminalibus aggregatis, floribus campanulatis decandris, calycibus obtusis.

This is a much taller plant than the *cærulea*, from which it differs moreover in the short and blunt segments of its calyx, the deflexed edges of the leaves, and their stronger serratures. The corolla is deciduous, almost bell-shaped, with a spreading limb, like *Rhododendron ferrugineum*, not ovate, and contracted at the mouth, like *M. cærulea.*

XX. *Some Observations on the Genus Andræa; with Descriptions of four British Species.* By *William Jackson Hooker, Esq., F.L.S.*

Read May 1, 1810.

THE genus upon which it is my intention here to offer a few observations, was originally established by Ehrhart in the first number of his *Beiträge*, and there received the name it has always subsequently borne, in honour of his friend J. G. R. Andreæ, an apothecary and able naturalist at Hanover. The only species with which Ehrhart was acquainted was the *A. alpina*, a plant that had long been known among botanists, but had always previously been joined to the *Jungermanniæ*, between which and the *Musci calyptrati* it unquestionably forms the connecting link; so that, though amid all the various changes and improvements which have of late years taken place in the system of Mosses, the genus *Andræa* has had the peculiar good fortune of remaining unaltered, yet a question has always arisen, how far it properly belonged to the order of *Mosses*, or *Hepaticæ*; its habit being almost equally intermediate between both, and its capsule seeming to partake more of the nature of the latter than of the former. I shall briefly notice what has been done by those botanists who have made any alteration in the character of the genus, or in its place in the systematic order; and then proceed to a description of the parts of fructification; from which I trust, that

that though, as remarked above, its appearance seems rather to assign it a place with the *Hepaticæ*, there will nevertheless be found no difficulty to exist in allowing it to continue, as it now generally stands, among the *Musci*.

The genus by Ehrhart himself was placed in the third order of the 24th class of Linnæus (the *Algæ*), which at that time contained what are now called *Hepaticæ*. He was, in all probability, induced to leave it there, from a reluctance to make alterations that did not appear absolutely necessary, and from its affinity to the genus *Jungermannia* in the same order, without considering the character of this order as given by Linnæus:— "A plant whose root and stem-leaves are all in one." It is however extraordinary he should have done so, since the definition of the genus *Andræa*, as first drawn out by himself, has so many characters in common with the *Musci*, and so few that are analogous to any thing among the *Algæ*.

For the benefit of those who may not have an opportunity of seeing the *Beiträge*, where it is contained, I will here transcribe this definition.

"ANDREÆA.

" *Perichætium* squamosum.
" *Squamæ* lanceolatæ, carinatæ, imbricatæ.
" *Anthophorum* longitudine perichætii.
" *Calyptra* conica, brevissima.
" *Stylopodium* nullum.
" *Conioecium* oblongum, subtetragonum, 4-sulcatum.
" *Apophysis* turbinata.
" *Valvulæ* quatuor carinatæ, angulares, basi apophysi apicibus conjunctorio adnatæ.

" *Suturæ*

"*Suturæ* laterales, ex medio sursum deorsumque versus dehiscentes.
"*Conjunctorium* obtusiusculum.
"*Dissepimentum* nullum.
"*Styliscus* cylindricus.
"*Spora* subtilissima."

With the above definition of *Andræa* before him, it is a matter of surprise that Hedwig, in the *Species Muscorum*, should have altered the characters to

"*Capsula* exigua, minuta. *Perist.* dentibus quatuor concavis, apice connexis, operculigeris:"

thus mistaking the apophysis for a capsule, and the four valves of the capsule for the teeth of a peristomium. He has, however, rightly arranged it among the *Musci.*

Bridel must have been entirely unacquainted with *Andræa*; or, surely, after having entered so deeply into the physiology of Mosses as he has done in the first volume of his *Muscologia*, he would have admitted the genus into that work. Had he once examined the fructification of *Andræa*, he would immediately have discovered that the characters of the order, to which it properly belongs, are accurately described in the chapter of his work entitled "*Quid sit Muscus.*"

Dr. Roth comes next to be noticed, who, in the third volume of his *Flora Germanica*, has given a very full account of the genus, but has placed it among the *Hepaticæ*, on account of the capsule's opening into four valves. In order to do this, however, he supports an opinion that the *conjunctorium* of Ehrhart is not an operculum, and that it does not perform the office of that part of a moss. But, till we are more fully acquainted with the use of the operculum, and till we are certain that the *conjunctorium* of

 Ehrhart

Ehrhart has a different function assigned to it, surely it would be better to retain the old name of *operculum*, to which it has full as much right as the part which occupies the same place in *Phascum*, and even more so; for in *Andræa* it is sometimes of a different colour, and is always of a different texture, from the capsule. Dr. Roth doubts whether the seeds may not, while in the capsule, be fixed to filaments of a similar nature to those of the *Jungermanniæ*; but, in all the species I have had an opportunity of examining, I have not been able to observe any thing of the kind.

Thus was *Andræa* removed from one order to another, as if its parts of fructification were among the minutest of the vegetable kingdom, or among the most difficult to examine, till the late Dr. Mohr in his *Flora Germanica*, (of which he sent an unedited copy to his friend Mr. Turner a little before his death,) by a concise definition of the two orders *Musci* and *Hepaticæ*, satisfactorily established it as belonging to the former of these, which he calls "*operculatæ*,"* but he has still persisted in calling the valves of the capsule a peristomium.

Having thus delivered my opinion as to the order to which *Andræa* properly belongs, it remains for me to say a few words upon the place which in that order it ought to occupy; and here I trust no doubt can be entertained of the propriety of placing

* Dr. Mohr's 6th order of the class Cryptogamia, which he calls "*Calyptratæ*," is divided into

a. Operculatæ, containing all the true *Musci*, among which *Andræa* stands the last;

b. Deoperculatæ, which includes all the *Hepaticæ*.

However excellent the definitions of these subdivisions may be, it seems hardly necessary to alter the old terms of *Musci* and *Hepaticæ*. See Dr. Smith's *Flora Britannica*, 1099, 1101.

it

it the last; by which means its affinity to *Jungermannia*, with which the next order *Hepaticæ* begins, will be pointed out. Yet it is to be regretted that, by so doing, according to the present arrangement of *Musci*, it must be so widely separated from the genus *Sphagnum*, to which in many particulars it bears a most striking resemblance, and in none more so than in the white succulent *pedicellus** and irregularly torn *calyptra*, a part of which frequently remains at the base of the capsule. If it were necessary in an artificial arrangement to regard more particularly natural affinity, perhaps at some future time it would be found desirable to alter the present disposition of the genera of Mosses, and begin with those whose peristomium is of a more complicated structure,—for example, with *Buxbaumia*, which, according to Dr. Mohr, has a treble row of teeth,—and thus descend successively through *Hypnum*, and those with a double and single peristomium, to *Gymnostomum*, *Phascum*, *Sphagnum* and *Andræa*.

The most striking similarity between the latter genus and *Jungermannia* is in the fleshy or rather succulent peduncle, the deep brown colour of the capsule, and the circumstance of its opening into four valves; to these may be added the absence of an internal membrane to the capsule, and the irregularly torn calyptra, which is not cut round transversely (*circumscissa*) as in most of the Mosses. But if we examine more attentively the structure of the capsule of *Andræa*, a nearer approach to the true *Musci* may be readily discovered, and we shall not fail to meet with all the important characters of that order. Bridel in his *Muscologia*, i. *p.* 3, defines a moss to be "Planta fructu calyptrato

* I have called this a *pedicellus* in compliance with the generality of Muscologists; but it is in reality an elongation of the receptacle in *Andræa* as well as in *Sphagnum*; so that these two genera differ from all other Mosses in having the capsule really sessile.

et

et operculato prædita. Per fructum calyptratum, capsulam tegmento cucullato seu mitriformi corollæ speciem sistente, et a thalamo, cui primus adhærebat, divulso vel per medium abruptum * instructum intelligimus, et per fructum operculatum, capsulam operculo plerumque libero, et maturitate decidente, rariùs remanente, tectam." Thus, he continues, we remove from the order *Musci*, 1. the *Lycopodia*, 2. *Porella*, 3. *Marchantia*, *Jungermannia*, and *Anthoceros*, "quæ quidem fructu non vero operculato sed dentibus aut valvulis pluribus dehiscente gaudent." The capsule is in reality furnished with an operculum, that is to say, is terminated by a conical-shaped covering, which, although closely united to the capsule, still has its line of separation so far defined that I should not think any one would hesitate in calling it an operculum. In *A. rupestris* and *Rothii* this part is even of a different colour. It is true it does not fall off, as in most other Mosses, for the emission of the seeds, nor does the singular conformation of the capsule require it; for, when the capsule is fully ripe, four longitudinal openings permit the discharge of the seeds. This operation can only be performed in dry weather, when the spaces between the valves open, the valves themselves swelling out, and the capsule, from an ovato-oblong figure, becoming more orbicular, as represented at Tab. XXXI. *fig.* 4. f. In moist weather the openings become contracted, and the capsule recovers its original form, even though the seeds may have been discharged. The calyptra is never elevated with the capsule in the shape of a true calyptra, as in the *Musci* in general, nor does it open vertically as in *Jungermannia*, but is some-

* In a note to this passage, Bridel instances as a single exception the genus *Sphagnum*, in which the lower and torn part of the calyptra remains surrounding the base of the capsule. *Andræa* of course makes another exception.

what

what transversely and irregularly torn below the summit, in such a manner that a portion of it very frequently, if not always, adheres to the operculum, and remains there till the capsule begins to decay. In a young state it is tipped with a long hollow style, which soon falls off, and only a short mucro is seen to remain in a more advanced state. The internal part of the capsule is entirely filled with minute, brown, spherical seeds, except what is occupied by the columella, which is at first succulent and vasculose, but soon becomes dry and shrivelled.

Character Essentialis.

Capsula quadrivalvis, valvarum apicibus operculo adnato.

Character Naturalis.

Fruct. fœm. terminalis statu juniore foliis perichætialibus omninò obtecta.

Pistilla numerosa, minuta, oblonga, viridia, quorum unum solum maturescit, reliqua pedicelli ad basin restant.

Pedicellus vix lineam vel sesquilineam longitudine superans, foliis perichætialibus paulùm longior, albus, succulentus, vasculosus, cylindraceus, ad basin in bulbilli formam intumescens.

Apophysis oblonga vel turbinata, fusca, substantiâ pulposâ impleta.

Capsula ovata, intensè fusca, cylindracea, demum subquadrangularis, in quatuor valvas æquales longitudinaliter dehiscens, apicibus semper operculo connexis.

Columella capsulæ ferè longitudine, oblonga, cylindracea, pallidè fusca, apice subacuminata.

Semina numerosa, minuta, fusca, adamussim sphærica.

Operculum minutum, conicum, capsulæ concolor in *A. alpinâ* et

nivali,

nivali, in *rupestri* et *Rothii* albescens, valvarum extremitati semper cohærens.

Calyptra membranacea, pellucens, albida, capsulam obtegens, demum, ut capsula evadat, enormiter et subhorizontaliter dehiscens.

Stylus longiusculus, fuscescens.

Fruct. mas. gemmiformis, terminalis.

Antheræ 3—7, ovato-subcylindraceæ, pallidè fusco-cinereæ, subpedicellatæ.

Fila succulenta numerosa, antheris multò longiora, filiformia, sursum versus modo parum incrassata, flavicantia, articulata, articulis longitudine diametrum subæquantibus.

* *foliis enervibus.*

1. Andræa *alpina.*

Andræa, caule ramoso, foliis oblongo-spathulatis apiculatis enervibus concavis undique imbricatis; perichætialibus oblongis acutis; interioribus circa pedicellum circumvolutis.

Jungermannia alpina. *Linn. Sp. Plant.* ii. *p.* 1601. *n.* 23. *Schrader, Spic. Fl. Germ. pars* 1*ma. p.* 76. *Weber, Spic. Fl. Goet. p.* 152. *n.* 216. *Fl. Dan. tab.* 1002. *f.* 1. *Roth, Fl. Germ.* 1. *p.* 485. *n.* 30.

Andræa petrophila. *Ehrhart, Beiträge* 1. *p.* 15. 192. *Hoffman, Deutschlands Flora* ii. *p.* 80. *Schrader, Syst. Samml. p.* 3. *n.* 91.

Andræa alpina. *Hedw. Sp. Musc. p.* 49. *Musc. Hib. p.* 13. *Smith, Fl. Brit.* iii. *p.* 1179. (excl. syn. A. rupestris Hedw.) *Roth, Fl. Germ.* iii. *p.* 359. *Engl. Bot. tab.* 1278. *Mohr, Fl. Crypt. Germ. p.* 383. *t.* 11. *f.* 3, 4.

Lichenastrum

Lichenastrum alpinum atro-rubens teres, calycibus squamosis. *Dill. Hist. Musc. p.* 506. *t.* 73. *n.* 39.

β *flavicans;* caulibus elongatis filiformibus, foliis laxè imbricatis flavicantibus.

γ *compacta;* caulibus densè pulvinatis strictissimis, foliis arctè imbricatis.

HAB. In palustribus montis Cader Idris, summitatem versus. In cautibus humidis, æquè ac siccis, montis Snowdon et ubique circa Llanberries. *Dillenius.* Ireland. *Mr. Turner.* On the summits of the Highland mountains, not uncommon.

β and γ on Ben Nevis.

Perennis. Æstate.

Caules cæspitosi, flexuosè erecti, unciales et ultrà, ramosi, ramis subsimplicibus, appressis, fastigiatis, ubique obsiti foliis laxè undique imbricatis, erecto-patentibus, obovatis, vel potius e basi oblongâ spathulatis, apice rotundatis, et mucrone perbrevi apiculatis, concavis, omnino enervibus, atro-rubescentibus ut oculo inermi nigra videantur, sub microscopio tamen flavicantibus, per totam substantiam longitudinaliter minutissimè punctato-striatis; *Perichætialia* ovato-oblonga, acutiuscula, circa pedicellum arctè imbricata, interiora circa ejus basin convoluta, exteriora erecta et concava, omnia colore substantiâque caulinorum similia; *Perigonialia* abbreviata, ovato-subrotunda, acuminata, concava.

Fructificatio; fœminea terminalis; *Pedicellus* sesquilinearis, foliis perichætialibus ferè obtectus, tener, albus, succulentus, demum brunneus, coriaceus, *Apophysi* coronatus, exiguâ, globosâ, fuscâ, capsulâ angustiore; *Capsula* oblongo-ovata, atro-fusca, in quatuor valvas æquales, angustas, apice cohærentes, longitudinalitèr fissa; *Operculum* valvarum apicibus adnatum, conicum, minutum, fuscum: *Mascula* gemmiformis, ramorum brevium latera-

lium ad apices terminalis; *Antheræ* 3—5 subpedicellatæ ovato-cylindraceæ, pallidè fuscæ; *Fila succulenta* antheris plus duplo longiora, numerosa, flavescentia, filiformia, sursum versus parùm incrassata, articulata, articulis longitudine diametrum subæquantibus.

Var. β major quam α, triuncialis et ultra, foliis laxiùs imbricatis magisque flavescentibus; caulibus simpliciusculis, filiformibus, tenuibus, flexuosis.

Var. γ caules habet densissimè pulvinatìm compactos, ramis strictis, æqualibus, insignitèr fastigiatis; foliis arctè imbricatis, patentibus, quibus ab antecedentibus duabus varietatibus præcipuè differt:—foliorum color atro-ruber.

At first sight this *Andræa* may be distinguished from its congeners by its more robust appearance, and by the more striking character of its leaves being imbricated on all sides of the stem, and never in the least secund. The var. β is remarkable for its large size, as well as its paler colour and more distinct leaves. γ might without a careful examination of the leaves be almost taken for a distinct species, and differs from α and β in having the stems as well as branches peculiarly straight and erect, the latter of so equal an height that they form compact tufts, of which the surface is as even as if cut with an instrument.

Although *Andræa alpina* has been given as a native of several parts of the North of England and Wales, yet I am inclined to think it may be numbered among our *Musci rariores*, and that *A. rupestris* has been often mistaken for it. Thus much I can say, that most of the specimens under the name of *A. alpina*, from the last-mentioned places, that I have had an opportunity of seeing, have proved to be *A. rupestris*; and on Ingleborough, where it is said to have been gathered, Mr. Dalton and myself were only able to find *rupestris* and *Rothii*. In Scotland, indeed,

upon

upon most of the high mountains, it seems to be not uncommon, and is even plentiful upon Ben Lawers, Ben-y-more, and Ben Nevis, but always upon the rocky summits, and even there of far less frequent occurrence than *A. rupestris* or *Rothii.* Mr. Turner has also received Irish specimens, gathered both by Mr. Templeton and Mr. Mackay.

2. ANDRÆA *rupestris.*

A. caule ramoso, foliis oblongo-lanceolatis obtusiusculis apice falcatis enervibus subsecundis; perichætialibus erectis oblongis: marginibus involutis.

Jungermannia rupestris. *Linn. Fl. Suec.* 920. ed. ii. *p.* 402. *n.* 1045.* *Sp. Plant.* ii. *p.* 1601. *n.* 21. *Weber, Spic. Fl. Goet. p.* 154. *n.* 217. *Roth. Fl. Germ.* i. *p.* 485. *n.* 28. iii. *p.* 378. *n.* 14. (excl. Syn. Dill.)

Andræa rupestris. *Hedw. Sp. Musc. p.* 47. *t.* 7. *f.* 2. *Engl. Bot. t.* 1277. (excl. syn. Fl. Brit. et Dill.) *Mohr, Fl. Crypt. Germ. p.* 384. *t.* 11. *f.* 5, 6.

HAB. On the Welsh mountains, *Mr. Dillwyn* and *Rev. H. Davies.* Yorkshire, *Mr. Robson.* On the highland mountains of Scotland, upon dry and barren rocks, not uncommon.

Perennis. Æstate.

Caules cæspitosi, subunguiculares, erectiusculi, nunc simplices, nunc prope basin bifurci, segmentis plerumque indivisis, undique vestiti foliis laxè imbricatis, flavo-olivaceis, latè-lanceolatis,

* Linnæus's description, in the second edition of *Flora Suecica* more particularly, and in the *Species Plantarum,* of this plant seems best to accord with *A. Rothii;* but his own specimens in the Linnæan Herbarium prove this to be the plant he intended, unless, as is most probable, he confounded the two.

 obtusis,

obtusis, apice curvatis, utplurimum secundis, concaviusculis, prorsùs enervibus, dorso punctis minutis elevatis longitudinalitèr striatis et quasi papillosis; *Perichætialia* reliquis longiora et pedicellum subæquantia, erecta, arctè imbricata, appressa, oblonga, vel oblongo-ovata, concava, obtusa, marginibus parùm involutis, flavescentia, longitudinalitèr striata; *Perigonialia* caulinorum similia, sed lætiùs flavescentia.

Fructificatio; *fœminea* terminalis; *Pedicellus* vix lineam longus, albus, succulentus, demum fuscescens, *Apophysi* terminatus oblongâ, angustâ, fuscâ; *Capsula* oblongo-ovata, basi alba atque diaphana, reliqua rufo-fusca, in quatuor valvas oblongas, ab apice ad infra medium, sed non ad basin attingentes, dehiscens; *Operculum* capsulæ pro ratione magnum, conicum, album, diaphanum, valvarum apicibus affixum: *Mascula* gemmiformis, terminalis; *Antheræ* 4 seu 5, subpedicellatæ, oblongo-cylindraceæ, effœtæ, albidæ, subpellucidæ; *Fila succulenta*, numerosa, lutescentia, filiformia, articulata, antheris sesquilongiora.

It will readily be seen, on looking at the above synonyms, how little the present plant has been either known or understood; and, indeed, it has very generally been confounded both with the preceding and the following species. This with respect to the latter is the more surprising, as two plants of the same genus can scarcely be more dissimilar in the structure and form of their leaves. The capsule of this *Andræa* has a striking peculiarity in its white semitransparent base, which is not dehiscent as in the other species, but is probably of a different texture from the rest of the capsule, as well as of a different colour; from which latter circumstance this part may be taken for a continuation of the apophysis; but *that* is situated just below it, and may be easily distinguished, on dissection, by its being filled with a pulpy substance only; whereas the white base to the

capsule

capsule contains its portion of the seeds, besides the columella, which passes through its centre and is inserted into the apophysis.

Andræa rupestris is found in less alpine situations than the last-mentioned species. On dry rocks, which afford nourishment to the various species of *Gyrophoræ*, and where there seems to be scarcely a particle of vegetable mould, this little plant may not unfrequently be met with.

** *foliis uninervibus.*

3. ANDRÆA *Rothii.*

A. caule simpliciusculo, foliis lanceolato-subulatis falcato-secundis uninervibus fragilibus; perichætialibus oblongis enervibus: margine involuto.

A. Rothii. *Mohr, Fl. Crypt. Germ. p.* 385. *t.* 11. *f.* 7, 8, 9.*

A. rupestris. *Smith, Fl. Brit.* 1178. *Turn. Musc. Hib. p.* 14.

Lichenastrum alpinum nigricans, foliis capillaceis, reflexis. *Dill. Hist. Musc. p.* 507. *t.* 73. 40.

HAB. In montibus Arvoniæ, Snowdon and Glyder, *Dillenius.* Ireland, *Mr. D. Turner.* On the Yorkshire and Scotch mountains, frequent.

Perennis. Æstate.

Caules cæspitosi, fragiles, vix unguiculares, erecti, plerumque simplices, sed interdum ramosi, ramis subappressis, simpliciusculis, ubique vestiti foliis densè imbricatis, e basi latiore lanceolatâ subulatis, falcatis, secundis, rigidis, nervo valido, basi

* *Engl. Bot. t.* 2162.

obsole-

obsoletiore, ad apicem percurrente instructis, nigro-viridibus, siccitate omninò nigris, sub lente elegantissimè punctatis; *Perichætialia* reliquis breviora, pedicelli vix longitudinem excedentia, oblonga vel oblongo-ovata, *interiora* margine inflexo et prorsùs enervia, *exteriora* nervo obsoleto infra apicem evanescente percursa; *Perigonialia* e basi ovato-subrotundâ acuminata, concava, infernè obsoletè uninervia.

Fructificatio; fœminea terminalis; *Pedicellus* vix lineam longus, albus, demum fuscescens, desinens in apophysin exiguam, rotundatam, fuscam, capsulâ angustiorem; *Capsula* ovata, nigro-fusca, basi pellucida, in quatuor valvas angustas ad basin usque longitudinalitèr dehiscens; *Operculum* conicum, minutum, albescens: *Mascula* gemmiformis, terminalis; ex *Antheris* constans 3—5, ovato-cylindraceis, subpellucidis, pallidè fuscis; et *Filamentis succulentis* numerosis, filiformibus, articulatis, flavescentibus, antheris duplo longioribus.

The only botanist who appears to have well understood the three preceding species of *Andræa* was the late Dr. Mohr, who first described *A. Rothii* as distinct from *rupestris*, and gave figures of them all in his excellent *Flora Germanica*. *A. Rothii* is far from uncommon in the mountainous parts of the British isles, and is immediately distinguished by its very black colour and small size. It is unquestionably the plant intended by the name of *A. rupestris* in the *Muscologia Hibernica*, which caused Hedwig's figure of the true *A. rupestris* to be there referred to *A. alpina*, though its most striking character, the midrib of the leaves, is not noticed by Mr. Turner. In the neighbourhood of Bantry it is so abundant, that, according to Miss Hutchins, the mountains are black with it.

4. Andræa

4. ANDRÆA *nivalis.*

A. caule ramoso, foliis laxè imbricatis lanceolatis subfalcatis secundis uninervibus; perichætialibus conformibus.

β *fuscescens*; foliis insignitèr falcatis fuscis.

HAB. Upon rocks on the summit of Ben Nevis, at the East end. *Perennis. Æ*state.

Caules erecti, densissimè cæspitosi, flexuosi, rubicundi, 3-unciales et ultrà, hi simplices, illi, quod sæpiùs accidit, bi-trifurci vel ramis aliquot sparsis brevibus instructi, ubique foliosi; *Folia* remotiuscula, angustè oblongo-lanceolata, acuminata, secunda, subfalcata, paululùm concava, sæpe plana, fusco-viridia, summa pallidiora, omnia minutissimè punctata, et nervo rubescente crassiusculo ad apicem usque attingente percursa; *Perichætialia* reliquorum similia; *Perigonialia* reliquis triplò breviora, ovato-subrotunda, brevitèr acuminata, concava, fuscescentia, nervo obscuro prope medium evanescente instructa.

Fructificatio; fœminea terminalis; *Pedicellus* sesquilinearis, foliorum longitudinem vix excedens, albo-virescens, basi parùm incrassatus et quasi bulbosus; *Apophysis* huic insidet minuta, oblonga, fusca, pedicello vix crassior; *Capsula* ovata, atro-fusca, in quatuor valvas angustas longitudinalitèr dehiscens; *Operculum* minutum, fuscum, valvis adnatum: *Mascula* frequentissima, gemmiformis, terminalis; *Antheræ* 4 ad 6, oblongæ, subpedicellatæ, fuscescentes; *Fila succulenta* numerosa, flavescentia, articulata, antherarum longitudinem bis terve excedentia, filiformia, sursùm versus paululùm incrassata.

Var. β discrepat colore magis fuscescente nitoris omnino experte, foliis densioribus magisque falcatis.

This very distinct species of *Andræa* has hitherto, I believe, been

been observed only by Mr. Borrer and myself upon the rocky summit of Ben Nevis, a mountain scarcely to be equalled by any other in Great Britain for the richness and rarity of its vegetable productions, particularly in the order of *Musci*, and which, from its vast extent, must be as yet but partially explored by the Cryptogamic botanist.

A. nivalis produces capsules in the month of July, but sparingly, although the male fructification is to be found in plenty at that season, and is easily distinguishable from the rest of the plant by its paler colour Barren specimens, and especially the variety β, have very much the appearance at first sight, both in the mode of growth and colour, of Mr Dickson's *Jungermannia adunca*, but the slightest examination of the leaves with a common pocket lens will be sufficient at once to distinguish them. Its nearest affinity is with the preceding species, from which it may always be known by its far greater size and different colour, by the similarity of the perichætial leaves to the cauline ones, and by these latter, which are much broader and by no means subulate, so that the nerve is furnished on each side with a considerable portion of the leaf to the very apex, whereas in *A. Rothii* it occupies towards the apex almost the whole breadth of the leaf. The pedicellus too has a peculiarity that I have not observed in any other species, in its base where the barren pistilla are situated being incrassated into a sort of bulb.

Explanation of Tab. XXXI.

Fig. 1. Andræa *alpina.*

a. portion of a branch, magnified 6
b. leaf 5

c. exterior

c. exterior perichætial leaf 5
d. interior perigonial leaf 5
f. 2 antheræ and succulent filaments 1

Fig. 2. ANDRÆA *rupestris.*

a. portion of a branch, magnified 6
b. c. leaves 5
d. perichætial leaf 5
e. perigonial leaf 5
f. 2 antheræ from which the pollen has been discharged, and 2 succulent filaments 1

Fig. 3. ANDRÆA *Rothii.*

a. capsules, magnified 6
b. leaf 5
c. perichætial leaf 5
e. a single anther and succulent filament 1

Fig. 4. ANDRÆA *nivalis.*

a. a. female plants }
b. b. male ditto } natural size.
c. var. β }
d. female plant, magnified 6
e. fully formed capsule with the torn calyptra, pedicellus and perichætial leaf 2
f. capsule after the discharge of the seeds 2
g. the columella with a few seeds adhering to it 2
h. seeds 1
i. portion of the calyptra 1

j.	leaf	4
k.	male head	6
l.	exterior perigonial leaf	5
m.	interior ditto	5
n.	antheræ and succulent filaments	2
o.	anther discharging the pollen	1
p.	succulent filaments	1

Halesworth, Feb. 19th, 1810.

XXI. *Some*

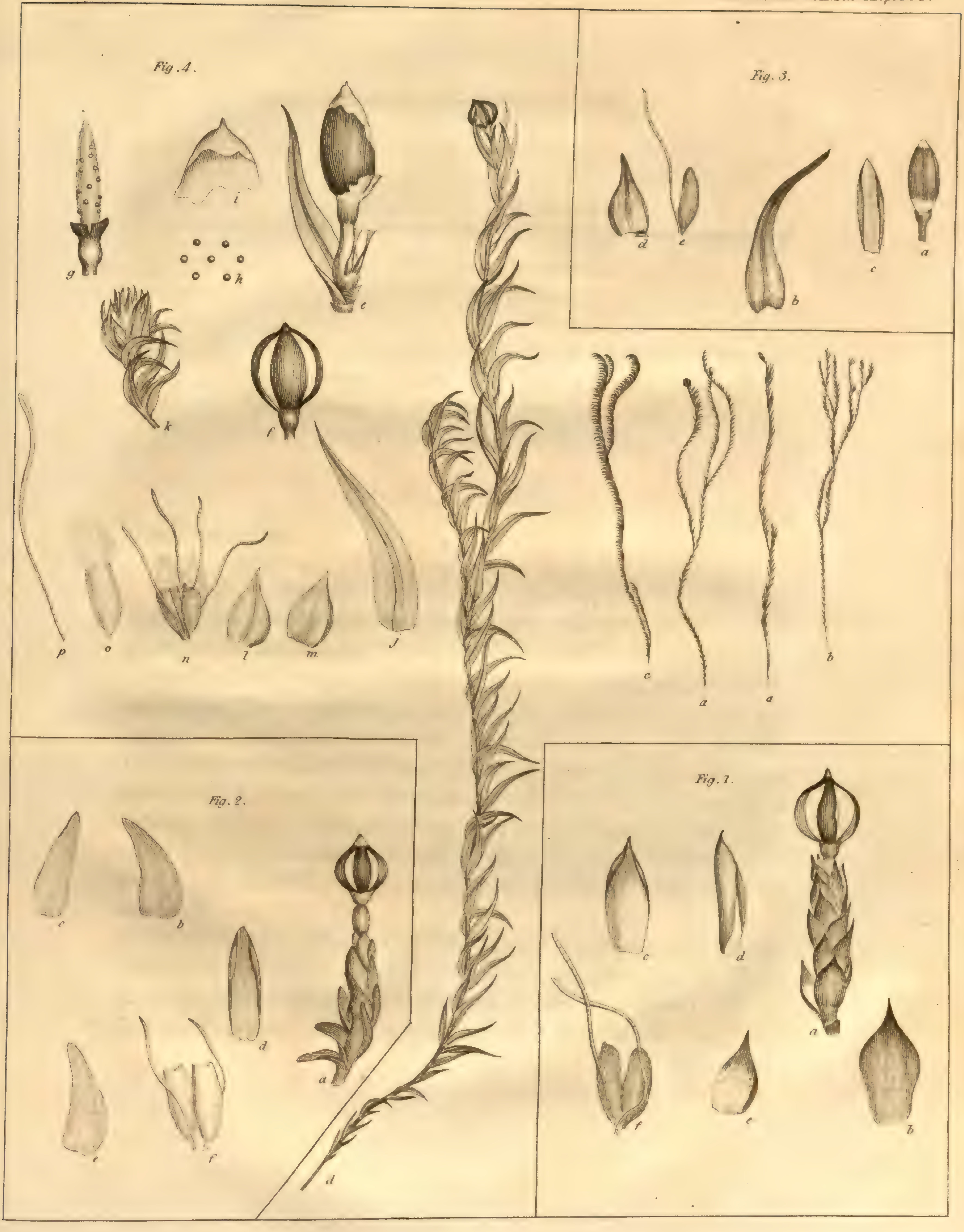


Fig. 4.
Fig. 3.
Fig. 2.
Fig. 1.

XXI. *Some Account of an Insect of the Genus* **Buprestis**, *taken alive out of Wood composing a Desk which had been made above twenty Years. In a Letter to* **Alexander MacLeay**, *Esq. F.R.S. and Sec. L.S. by* **Thomas Marsham**, *Esq. Treas. L.S.*

Read June 19, 1810.

MY DEAR SIR,

As every circumstance that tends to the illustration of Natural History is particularly gratifying to you, I feel pleasure in announcing to you a curious and extraordinary fact, in our favourite science of Entomology, communicated to me by our Right Honourable friend Sir Joseph Banks, and which I am anxious to have laid before the Linnean Society, with a hope that it may stimulate others to impart similar and other singular facts as they occur, in order that, by collecting and registering a number of such communications, a new and beneficial light may open into the admirable works of the omniscient Creator, and the clouds of darkness that at present overshadow them may be removed.

On the 3d of January 1810, Mr. James Montague, one of the Surveyors to the Corporation of London, on going to his desk in the Office of Works at Guildhall, observed an insect, which had been seen by his brother in the early part of the day, en-

deavouring to extricate itself from the wood which formed part of the desk. Mr. Montague with his penknife carefully released it from its cell, and it proved to be a beautiful coleopterous insect, of the genus *Buprestis*, full of strength and vigour. The desk, which is 8 feet 9 inches long and 3 feet 5 inches wide, is made of fir wood, which is perfectly sound. It was fixed in the office in the year 1788 or 1789, and it has remained there, untouched, ever since, excepting that about three years ago it was planed to remove some ink spots; by which operation the animal had a very narrow escape from being discovered, as was apparent from the thinness of the wood over the cell when it attempted to come out. The insect with a piece of the wood about a foot square, cut out nearly from the middle of the desk, was sent to Sir Joseph Banks; but a thin shaving had previously been taken from the surface of the board, by the officious care of a carpenter, who chose to shave away the stains of ink.

When I first saw this insect alive in Soho Square, both Sir Joseph and myself were much struck with the richness, beauty and elegance of its colours, particularly on account of its having come out of a plank imported from the Baltic, as those splendid insects in general inhabit the hottest climates. On examination, we found it described by Fabricius in his *Systema Eleutheratorum*, ii. 204. 101. as *Buprestis splendens*, although he adds "*Habitat in China.*" It is also described by Paykull in his *Fauna Suecica*, vol. iii. 229. 16. under the name of *B. splendida.* "*Habitat in Uplandia rarius.*" And Gyllenhall, who has given the best and most particular description of it, in his *Insecta Suecica*, i. 455. 15. adopts the name of *B. splendida* after Paykull, and quotes *Herbst. Col.* ix. 55. 38. which I have no doubt is the same, as this author likewise refers to Paykull. Gyllenhall seems also to think that *B. pretiosa* of *Herbst.* ix. 127. 6. tab. 144. fig. C. is the same

Fig. 2.

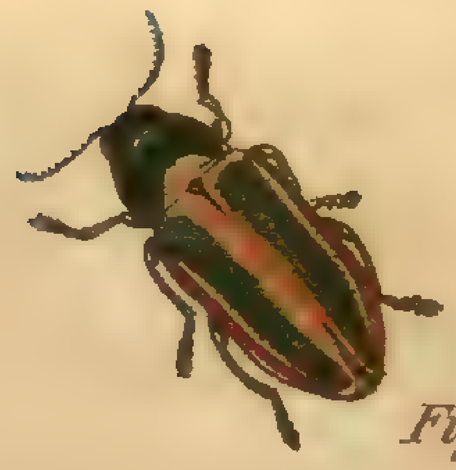


Fig. 1.

Fig. 4.

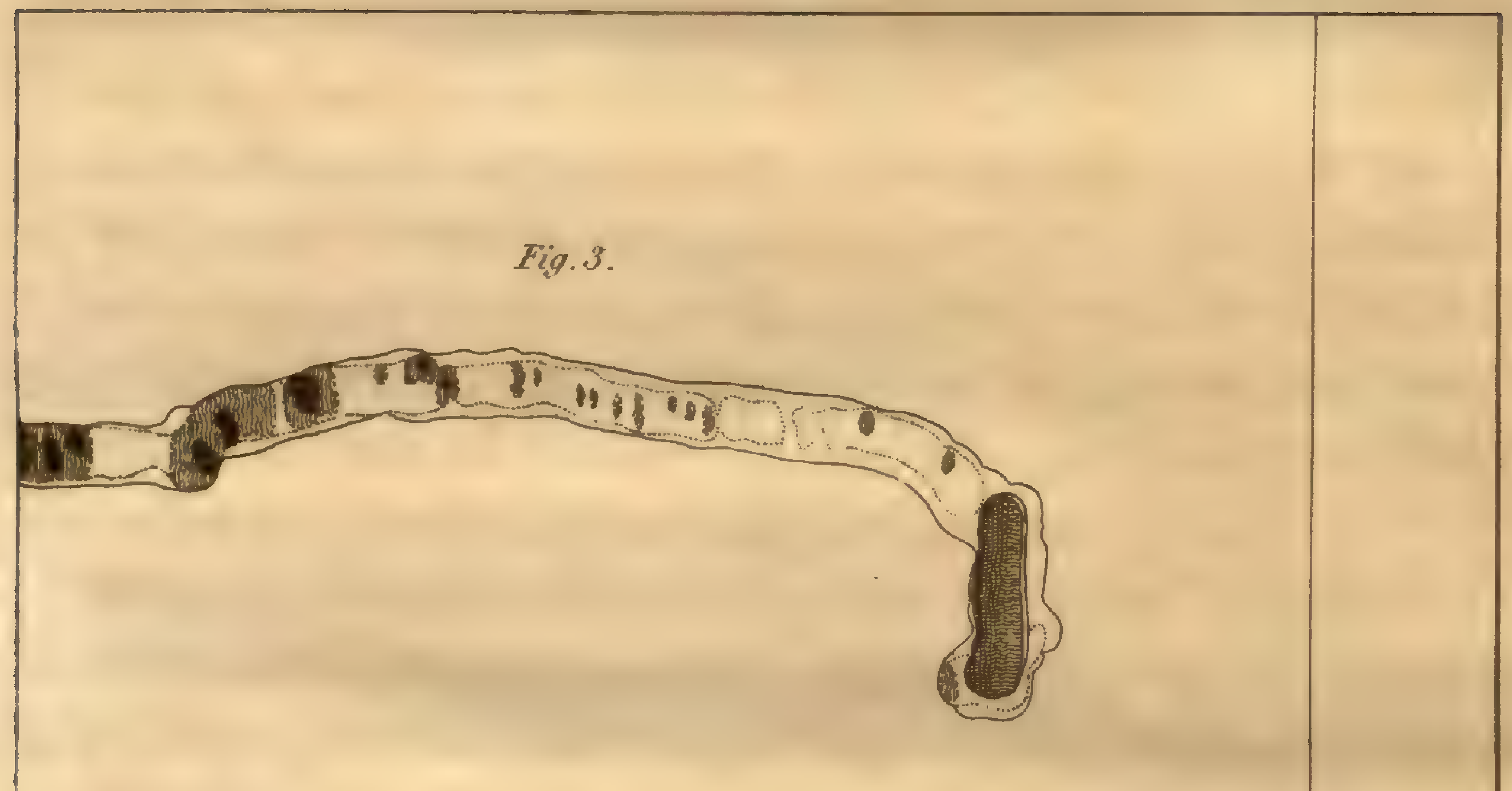


Fig. 3.

same insect; but in this I cannot agree with him, as neither description nor figure accords with *B. splendens.*

The annexed figures, Tab. XXXII. *fig.* 1. and 2. represent our insect in its perfect state. Fig. 3. is a reduced drawing of the piece of wood, with the excavation from which the insect issued: the dark spotted parts are exact representations of the wood, as it appeared when first in our possession: the lighter shades mark the appearance after a thin shaving had been taken off by a plane: proceeding further with the same instrument, the opening extended to the dotted lines; and the outer lines show the full breadth of the excavation, as made by the insect, when it was planed down to half its depth. The total length of the channel could not be ascertained, as it is evident the whole width of the plank was not sent. Fig 4. represents a section of the entrance of the full size.

It is a subject of curious inquiry to know in what state the insect remained for such a term of years in this wood, whether as a larva, a pupa, or as a perfectly formed animal, or what length of time in each state. Some insects remain a considerable time in the larva state, as the Wire-Worm, which is said to be five years before its change into pupa. Others again remain two or three years as pupa, and many coleopterous insects will live a considerable time in their last or perfect state. The present discovery, however, establishes one fact, which has hitherto appeared doubtful, viz. where the larvæ of *Buprestis* inhabit, and on what substance they feed. The celebrated Baron De Geer, and after him Olivier, suspected that they lived in dry wood, because the first had discovered a dead specimen of *Buprestis rustica* in a beam of a house, and the latter *B. Mariana* upon the trunks of worm-eaten pine-trees, and in the timber-yard

yard of the arsenal at Toulon. Many years since a row of the Lombardy poplar was planted on the border of a foot path leading to the Dog and Duck in St. George's Fields, and soon afterwards two of the *B. 9-maculata* of *Ent. Brit.* were taken from the trunks of those trees; but I have not heard that any more of the same species have been taken in Great Britain.

The destructive property of these insects to timber is now evident: and the length of time that this animal lay concealed strengthens an opinion which I have, from several causes, long entertained, that, by the dispensation of Providence, nothing once created shall be entirely lost; but, that although a series of unfavourable seasons may succeed each other, so as to destroy the greatest part of many animals, yet a remnant shall remain to propagate and continue the species. In confirmation of this remark I shall mention one instance, which occurred to my friend William Jones, Esq. of Chelsea, and which I do not recollect to have seen published. This gentleman in one of his entomological excursions took a female of the *Phalæna Bombyx mendica*, which laid a number of eggs that produced thirty-six caterpillars: all of these fed, spun their cases, and went into the pupa state in a regular manner: but at the proper season only twelve came out in their perfect state; and as this was no uncommon circumstance he concluded that the rest were dead. To his great astonishment however, the next season twelve more made their appearance, and the following year the remainder burst into life, equally perfect with the foregoing. How is this extraordinary fact to be accounted for, except by the abovementioned supposition? They all fed alike, spun up about the same time, were equally exposed to the same atmosphere of heat and cold, and yet the result was so widely different. The question I am

aware

aware is more easily proposed than answered; yet it is not impossible but that future observations may lead to an explanation of this mystery.

I cannot conclude this letter without mentioning another curious circumstance related to me by Sir Joseph Banks. The *Sirex Gigas* was seen in the nursery of a gentleman, to the no small discomfiture of both nurse and children in consequence of its size and wasp-like appearance; and a few days afterwards several insects of that species came out of the floor of the same room. I once had one sent to me, which was reported to have eaten its way through a leaden pipe; and the *Sirex Juvenca*, a large blue one, I found in my own bedchamber, in a house that had been newly built.

That numbers of exotic insects are imported into this country in timber, and different packages of goods, there is no doubt; and therefore it becomes the duty of the British Entomologist to be cautious how he arranges them, and not to consider every insect to be British that is found alive in this country.

I am, &c.

THOMAS MARSHAM.

XXII. Ex-

XXII. Extracts *from the* Minute-Book *of the* Linnean Society *of* London.

Dec. 6, 1808. The Treasurer communicated a letter from the Rev. William Bingley, F.L.S., giving an account of his having taken *Forficula gigantea* of Fabricius on the West Beach near Christchurch, on the 7th of July last.

Mr. Bingley states, that as he was walking on the Beach just at the close of the evening, he saw two or three large insects running along the sand, about or rather below high-water mark, and from their size and manner he took them to be young Mole Crickets. Surprised at seeing such insects in that situation, he examined them as well as the light would permit, and, by their immense forceps and size, found them to be a species of *Forficula* hitherto undescribed as British. He took home some specimens, and ascertained them to be the *Forficula gigantea* of Fabricius. From subsequent observations he concludes that these insects seldom or never quit their hiding-places in the day-time. A friend of Mr. Bingley's sought for them afterwards in the same place, and found a great number concealed under large stones about the sands. Mr. Bingley sometimes put three or four together into his box; and the consequence was, that one of them was frequently devoured by the rest. In their habits these insects greatly resemble the common Earwig; but when approached they turn

up

up their abdomen in the manner of the large Staphylini, bending the extremity quite over the head, which they defend by means of their enormous forceps. The largest he could procure was nearly fifteen lines in length, exclusive of the antennæ, which measured somewhat more than half an inch.

Nov. 7, 1809. Mr. Sowerby, F.L.S. communicated the following account of a remarkable stone, known by the name of the Blowing-Stone, on the road from Farringdon to Uffington, in Berkshire.

The Blowing-Stone is placed near the front of a little public-house, to which it gives its name. It is an unwrought Sand-stone, about three feet high, three feet wide, and nearly eighteen inches in thickness, having natural perforations. One of these perforations begins at the upper end on one side, and passes to the other side a little lower down. It is eighteen inches in length, about an inch in diameter at the upper end, and nearly two inches at the lower; thus forming a tube like a horn, and when filled with wind sounds like one, and may be heard at a considerable distance. Any one used to blowing a horn can sound it. Mr. Sowerby has not been able to determine whether these perforations were caused by roots of trees or by an animal; but he concludes that they have been formed in the same manner as those observed in some of the Sand-stone found on Marlborough Downs.

Mr. Sowerby also communicated the following account of a pit about two miles from Farringdon, commonly called the Farringdon Gravel Pit.

" This pit is of a nature not yet described, being a rock com-

composed of petrified animal remains, which agree in structure much better with the Alcyoniums than with any thing else I can recollect. The rock exposes some hundreds of yards of strata and surface; and, being chiefly composed of heaps on heaps of these substances, is truly curious. It is cemented together by brown and reddish oxide of iron, which often covers the animal remains in a peculiar manner with a fine crust of spiculæ, giving a velvety lustre to them when the light catches on their shining sides. Besides these Zoophytes there are remarkable Belemnites, mostly worn; and a stratum about an inch thick, that presents little else than spines of Echini. There are also some Nautili, and small pebbles of every description, to be found in this rock."

Mar. 6, 1811. Read the following Observations on some Plants of the *Flora Japonica*, by A. B. Lambert, Esq. V.P.L.S.

Mr. Lambert having lately received a collection of specimens of plants from Japan, and another from Egypt, he has been enabled to determine two species of plants belonging to the genus *Mimosa* of Linn. which have hitherto remained doubtful among botanists. One is the *Mimosa Lebbeck* of Linn. found by Hasselquist, who describes it in the *Act. Ups.* 1750. *p.* 9. *It.* 473. "foliis pinnatis" instead of foliis bipinnatis; which has caused the mistakes of subsequent writers on that genus. Jacquin was the first who made this plant a new species under the name of *Mimosa speciosa*. This name has been taken up in the first edition of the *Hortus Kewensis*, and Willdenow in his *Species Plant.* has called it *Acacia speciosa*; but from Mr. Lambert's specimens it is evident that *Acacia speciosa* and *Acacia Lebbeck* Willd. are the same plant. The other is

the

the plant which is described by Thunberg in his *Flora Japon.* under the name of *Mimosa arborea*, first shown to be an error by the late Mr. Dryander in *Kæmpf. Icon. Select.* published by Sir Joseph Banks. Thunberg afterwards, in his paper on Japan plants in the second volume of the *Trans. Linn. Soc.*, named it *Mimosa speciosa*. Willdenow in his edition of *Species Plant.* calls it *Acacia Nemu*; he appears to have made his description from Kæmpfer's figure, and places it in the genus next to his *Acacia Julibrissen*. The Japan specimens in Mr. Lambert's possession prove that the *Mimosa Julibrissen* of the *Hort. Kew.*, the *Acacia Julibrissen* of Willdenow *Sp. Plant.*, and the *Acacia Nemu* of the same author, are all the same plant.

The figure in Gmelin's Travels, vol. iii. p. 372, pl. 40, which he calls there *Mimosa arborea*, seems not to have been quoted by any of the editors of the *Species Plantarum*, except Richard, who has taken it up as *Mimosa Lebbeck* with a doubt. Having found very fine specimens of Gmelin's plant in Pallas's Herbarium, sent to him by Gmelin, and from which his figure was drawn, Mr. Lambert has been enabled to determine it to be *Mimosa Julibrissen* of Linn. *Hort. Kew.* ed. 1, and *Acacia Julibrissen* of *Linn. Species Plantarum* by Willdenow.

Hypoxis spicata of Thunberg's *Flor. Japonica*, which is *Aletris farinosa* of the same author in the second volume of the *Trans. Linn. Soc.*, is a new species, and Thunberg's specific character sufficiently distinguishes it from the Linnean plant, to which at first sight it seems nearly allied. Mr. Lambert therefore calls it *Aletris Japonica*.

CATALOGUE

OF THE

LIBRARY OF THE LINNEAN SOCIETY.

Continued from Page 328 of Vol. IX. of the Society's Transactions.

N. B. Books, which are Continuations of Works, included in any of the former Parts of the Catalogue, have the original Numbers here affixed to them; and the other Books are numbered in regular Progression.

670. Bauhini (Casp.) Prodromus Theatri Botanici. Basil. 1672, 4to.
671. Bernardi (A. B.) Sicularum Plantarum Centuria prima. Panormi, 1806, 8vo.
672. Bournon (Le Comte de) Traité de Mineralogie, premiere partie: 3 tom. Londres, 1808, 4to.
673. Brown (R.) On the Natural Order of Plants called Asclepiadeæ. Edin. 1810, 8vo.
674. ———— Prodromus Floræ Novæ Hollandiæ, vol. 1. London, 1810, 8vo.
675. Clark's (Bracy) Dissertation on the Foot of the Horse, part 1st. London, 1809, 4to.
676. Crosfield's (G.) Calendar of Flora at Warrington, in 1809. Warrington, 1810, 8vo.
677. Delacroix (D.) Connubia Florum, ed. R. Clayton, Baroneto. Bath, 1791, 8vo.
678. Delaroche (F.) Eryngiorum Historia. Paris. 1808, fol.
679. ———— Observations sur des Poissons recueillis dans un Voyage aux Isles Baleares et Pythiuses. Paris, 4to.
680. ———— Observations sur la Vessie Aerienne des Poissons. Paris, 4to.
538. Dillwyn's (L. W.) Synopsis of British Confervæ, fasc. 14—16. London, 1808—9, 4to.
681. Fallen (Carl. Fredric) Præside, Diss. de Beta Pabulari, Lundæ, 1792, 4to.
682. Harris's (W.) Catalogue of the Library of the Royal Institution. London, 1809, 8vo.

548. Haworth

548. Haworth (A. H.) Lepidoptera Britannica, pars 2da. Lond. 1809, 8vo.
683. Klein (Jac. Theod.) An Tithymaloides frutescens foliis Nerii. Gedani, 1730, 4to.
554. Konig (C.) and J. Sims's Annals of Botany, No. 6. London, 1806, 8vo.
650. Latreille (A. P.) Genera Crustaceorum et Insectorum, tom. 4tus. Paris, 1809, 8vo.
685. Loudon (J.) The Utility of Agricultural Knowledge to the Sons of the Landed Proprietors of England. London, 1809, 8vo.
686. Marsden's (W.) History of Sumatra, 3d ed. London, 1811, 4to, with Atlas fol.
687. Martin's (W.) Outlines of a System of Extraneous Fossils. Macclesfield, 1809, 8vo.
688. Monro (A.) On the Structure and Physiology of Fishes. Edin. 1785, fol.
561. Montagu's (G.) Supplement to Testacea Britannica. London, 1808, 4to.
689. Neale (A.) Letters from Spain and Portugal. London, 1809, 4to.
690. Paulet (Joann. Jacob.) Tabula Plantarum Fungosarum. Paris. 1791, 4to.
691. Pennant's (T.) Tours in Wales, 3 vols. London, 1810, 8vo.
692. Pona (J.) Plantæ quæ in Baldo Monte reperiuntur. Basil. 1608, 4to.
693. Raffeneau-Delisle (Alire) Dissertation sur les Effets d'un Poison de Java, appelé Upas tieuté. Paris, 1809, 4to.
694. Reeve's (H.) Essay on the Torpidity of Animals. London, 1809, 8vo.
Retzii (A. J.) Dissertationes Academicæ. Lundæ, 1808, 4to.
695. ———— De Plantis Cibariis Romanorum.
696. ———— Om Käl.
697. Sabatti (L. et C.) Hortus Romanus, tom. 1—7. Romæ, 1772—84, fol.
511. Shaw's (G.) General Zoology, vol. 7th, parts 1 and 2. London, 1809, 8vo.
698. ———— Zoological Lectures, 2 vols. London, 1809, 8vo.
699. Smith's (J. E.) Introduction to Physiological and Systematic Botany, 2d edition. London, 1809, 8vo.
700. ———— Tour to Hafod. London, 1810, fol.
377. ———— and Sowerby's English Botany, vol. 27—31. London, 1808—10, 8vo.
568. Sowerby's (J.) British Mineralogy, No. 50—65. London, 1808—11, 8vo.
386. ———— English Fungi, No. 28, 29. London, 1809, fol.
701. ———— New Elucidation of Colours. London, 1809, 4to.
702. Spence's (W.) Agriculture the Source of Wealth of Great Britain. London, 1808, 8vo.
703. ———— Britain Independent of Commerce, 6th edition. London, 1808, 8vo.
704. ———— Radical Cure of the Present Distresses of the West-India Planters. London, 1808, 8vo.

704. Lin-

704. Linnæi Philosophia Botanica, ed. quarta, cura C. Sprengel. Halæ ad Salam, 1809, 8vo.

705. Thompson's (J. V.) Catalogue of Plants growing in the Vicinity of Berwick-upon-Tweed. London, 1807, 8vo.

Thunberg (C. P.) Dissertationes Academicæ Upsaliæ. 4to.

706. ——————— Betula. 1807.

707. ——————— Dracæna. 1808.

708. ——————— Museum Naturalium Academiæ Upsaliensis Append. 14. 1807.

709. ——————— Reformandæ Pharmacopœæ Suecicæ Specimen 7tum, 1807.

710. ——————— Flora Capensis, vol. 1, pars prima. Upsaliæ, 1807, 8vo.

711. Ventenat (E. P.) Decas Generum Novorum aut parum cognitorum. Paris. 1808, 8vo.

712. Wade's (W.) Oaks, from the French of Michaux. Dublin, 1809, 8vo.

713. ——————— Sketch of Lectures on Artificial or Sown Grasses. Dublin, 1808, 8vo.

714. ——————— ——————— on Meadow and Pasture Grasses. Dublin, 1808, 8vo.

715. Annales du Museum National d'Histoire Naturelle, par les Professeurs de cet Etablissement, 15 tom. Paris, 1802—10, 4to.

528. Asiatick Researches, vol. 9. Calcutta, 1807, 4to.

438. Philosophical Transactions for 1808—10. London, 4to.

665. Transactions of the Horticultural Society of London, vol. 1, part 2d. London, 1808, 4to.

527. Transactions of the Royal Society of Edinburgh, vol. 6, part 2d. Edin. 1809, 4to.

439. Transactions of the Society for the Encouragement of Arts, Manufactures, and Commerce, vol. 25—27. London, 1807—9, 8vo.

716. Some Account of the late Peter Collinson. London, 1770, 4to.

717. Observations on the Brumal Retreat of the Swallow, by Philochelidon. London, 1808, 8vo.

LIST OF DONORS

TO THE

LIBRARY OF THE LINNEAN SOCIETY.

With References to the Numbers affixed in the foregoing Catalogue to the Books presented by them respectively.

THE Royal Society of London, 438.
The Royal Society of Edinburgh, 527.
The Asiatick Society, 528.
The Society for the Encouragement of Arts, Manufactures, and Commerce, 439.
The Horticultural Society of London, 665.
The Managers of the Royal Institution, 682.
The Right Honourable Sir Joseph Banks, Bart. K.B. H.M.L.S. 683. 690.
Anton. Bivona Bernardi, 671.
Le Comte de Bournon, F.M.L.S. 672.
Mr. Robert Brown, Libr. L.S. 673. 674. 711.
Alexander P. Buchan, M.D. F.L.S. 677.
Rev. John Burrell, M.A. F.L.S. 688.
Mr. Bracy Clark, F.L.S. 675.
Mr. George Crosfield, 676.
F. Delaroche, M.D. 678. 679. 680.
Lewis Weston Dillwyn, Esq. F.L.S. 538.
The late Jonas Dryander, Esq. V.P.L.S. 681. 706. 707. 708. 709. 710.
Thomas Forster, Esq. F.L.S. 717.

Adrian

Adrian Hardy Haworth, Esq. F.L.S. 548.
Sir Thomas Maynard-Hesilrige, Bart. F.L.S. 697.
Aylmer Bourke Lambert, Esq. V.P.L.S. 670. 692.
William Lewis, Esq. F.L.S. 716.
Mr. John Loudon, F.L.S. 685.
Alexander MacLeay, Esq. Sec. L.S. 650.
William Marsden, Esq. F.R.S. 686.
The late Mr. William Martin, F.L.S. 687.
George Montagu, Esq. F.L.S. 561.
Adam Neale, M.D. F.L.S. 689.
David Pennant, Esq. F.L.S. 691.
Henry Reeve, M.D. F.L.S. 694.
Andreas Johannes Retzius, F.M.L.S. 695. 696.
George Shaw, M.D. F.L.S. 511. 698.
John Sims, M.D. F.L.S. 554.
James Edward Smith, M.D. P.L.S. 693. 699. 700.
Mr. James Sowerby, F.L.S. 377. 386. 568. 701.
William Spence, Esq. F.L.S. 702. 703. 704.
Kurt Sprengel, M.D. 684.
John Vaughan Thompson, Esq. F.L.S. 705.
Walter Wade, M.D. A.L.S. 712. 713. 714.

DONATIONS

TO THE

MUSEUM OF THE LINNEAN SOCIETY,

Exclusive of many Presents of single Specimens of Animals, Plants, and Minerals.

DONATIONS.	DONORS.
SKINS of the Mountain Ram, and of another Animal, from the interior Part of Canada . .	Lieut. Gen. Thos. Davies, F.L.S.
Specimens of Meleagris Satyra, Phasianus ignitus, and two other Indian Birds	Lieut.-Col. Thos. Hardwick, F.L.S.
Several Specimens of Bird Skins collected in New South Wales by Mr. W. Westall . .	A. B. Lambert, Esq. V.P.L.S.
Specimens of 34 Birds from Berbice	Alexander MacLeay, Esq. Sec. L.S.
An extensive Cabinet of Insects	The Rt. Hon. Sir Joseph Banks Bart. K.B.
A Cabinet of European Lepidopterous Insects . .	John Symmons, Esq. F.L.S.
A Collection of English Shells	Rev. Hugh Davies, F.L.S.
A Collection of Shells, chiefly from the Red Sea	Viscount Valentia, F.L.S.
A Collection of dried Plants, named on the Authority of the Linnean Herbarium : Hortus siccus Britannicus, Fasc. 1—19.	Mr. James Dickson, F.L.S.
A Collection of Specimens of Mints	Mr. W. Sole, A.L.S.
A Collection of dried Marine Plants, in two Books	John Stackhouse, Esq. F.L.S.
Specimens of Confervæ, figured in the Synopsis of British Confervæ	L. W. Dillwyn, Esq. F.L.S.

DONATIONS.	DONORS.
Specimens of dried Plants	Mr. John Fairbairn, F.L.S.
Specimens of Plants collected in the County of Mayo by Dr. Patrick Browne Specimens of Plants from Barbadoes	A. B. Lambert, Esq. V.P.L.S.
A Collection of dried Plants from Portugal	W. Withering, Esq. F.L.S.
A large Collection of dried Plants from India and the Cape of Good Hope	W. Roxburgh, M.D. F.L.S.
A Collection of Specimens of Plants from Jamaica	W. Wright, M.D. A.L.S.
An arranged Collection of Lichens, with Reference to the Methodus Lichenum, and to the unpublished Lichenographia Universalis of the Donor	Erick Acharius, M.D. F.M.L.S.
A Portrait of the late Dr. Solander	R. A. Salisbury, Esq. F.L.S.
A Portrait of the late Henry Seymer, Esq.	A. B. Lambert, Esq. V.P.L.S.

N.B. The Museum bequeathed by the late Dr. Pulteney, as noticed in the Sixth Volume of the Society's Transactions, p. 390, consists of an extensive Collection of Shells, an Herbarium Britannicum, a Collection of exotic Plants, and a Collection of Minerals.

Directions for placing the Plates of the Tenth Volume.

TAB. 1.	Brodiæa congesta	to face page 3
2.	Knightia excelsa	194
3.	Dryandra formosa	213
4.	Cardamom Plant	247
5.	———————	248
6.	Pentstemon frutescens & Lobelia sessilifolia	259
7.	Phelipæa foliata	260
8.	Chamærops humilis	263
9.	Vaccinium præstans }	264
10.	Rumex graminifolius }	264
11.	Lilium camtschatcense	265
12.	Centrolepis cuspidigera & C. æmula	283
13.	Pimelea curviflora & P. glauca	285
14.	Pimelea filamentosa & P. spicata	287
15.	Xyris elongata & Scirpus gracilis	289
16.	Persoonia pinifolia & P. hirsuta	290
17.	Conospermum ericifolium & Zieria pilosa	292
18.	Cryptandra ericifolia & C. amara	294
19.	Styphelia reflexa & Lasiopetalum parviflorum	296
20.	Pittosporum fulvum	298
21.	Marsdenia suaveolens & Trachymene incisa	299
22.	Xanthosia pilosa & Poranthera ericifolia	301
23.	Dawsonia polytrichoides	324
24.	Shells	332
25.	Ormosia coccinea	360
26.	Ormosia dasycarpa	362
27.	Ormosia coarctata	363
28.	Brunonia australis }	370
29.	Brunonia sericea }	370
30.	Menziesia cærulea & M. Bryantha	379
31.	Andræa	398
32.	Buprestis splendens	401

The Binder is requested to observe, that as a general Title-page and a Table of Contents for the whole volume are now given, the Title-pages to the separate Parts, and the Table of Contents for Part I., are to be cancelled.

ERRATA.

Page 18, *l.* 12, for *polleniferous* read *polliniferous*.
22, *l.* 7 from the bottom, for *Josephia* read *Dryandra*.
29, *l.* 22, for *Agastachya* read *Agastachys*.
30, *l.* 3, for *Gevuina* read *Guevina*.
31, *l.* 21, for *Josephia* read *Dryandra*.
34, *l.* 18, for *Ahena* read *Akena*.
48, *l.* 13, for *apice* read *apici*; for *latere* read *lateri*.
48, *l.* 4 from the bottom, for *Rhaphi* read *Raphe*.
52, *l.* 9, after *floribus* add (;) and erase it after *separata*.
57, *l.* 1, for *disc.* read *desc.*
88, *l.* 12, erase *hyphen* between *dimidio* and *brevioribus*.
105, Mimetes,—the specific names of this genus when adjectives to terminate in *us*.
112, *l.* 24, after *Hoot* erase (.)
137, *l.* 3, for *spicato* read *spicata*.
145, *l.* 6, insert (,) after *acutissimus*, and erase it after *breviore*.
152, *l.* 3, for *oræ* read *ora*.
169, *l.* 12, for LYSSOSTYLIS read LISSOSTYLIS.
198, *l.* 26, erase *observavimus*.
200, *l.* 17, after 5 insert L.
223, *l.* 2, for *Gevuina* read *Guevina*.
224, *l.* 28, for *Apociniæ* read *Apocineæ*.
226, *l.* 8 from the bottom, erase *et auctum*.
312, *l.* 7, for *necessary* read *unnecessary*.
316, *l.* 19, after *modo* erase the (.)

Tab. II. fig. 3, erase the lines which alternate with the scales.

END OF THE TENTH VOLUME.

Printed by Richard Taylor and Co., Shoe-Lane, London.